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ABSTRACT

This publication contains a report describing a May 1972 seminar sponsored by the International Institute for Educational Planning to discuss current approaches to educational evaluation. In addition, the following 11 papers presented at the conference are included in their entirety: "Possible Criteria for Evaluating Education Policies," by R. Poignant; "Towards the Design of Strategies for Evaluating Development Assistance," by A.R. MacKinnon; "A Systematic Approach to Goal Analysis and Evaluation of Socioeconomic Effects," by G. Dahlgren; "The Role of Sector Strategy and Sector Analysis in the Planning of Swedish International Development Assistance," by L.O. Edstrom; "An Approach to External Evaluation of Training," by I. Ahman; "Guidelines for I.B.R.D.'s Education Sector Reviews and Education Pre-investment Study Programs," by M. Hultin and C. van Dijk; "Swedish Criteria for Program and Project Support," by the Swedish International Development Authority; "Problems of Evaluation of University Development Co-operation Projects," by A. Kater and L.F.E. Dubbeldam; "The Esfahan Work-Oriented Adult Literacy Pilot Project," by J. Ryan; "Planning and Introducing the Evaluation of the Educational Television Service in the Ivory Coast," by J.C. Pauvert; and "Statistical Research on Internal Efficiency of School Systems," by G. Carceles. (JG)

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Evaluation of educational systems

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Contributions to a seminar
held at the International Institute
for Educational Planning
29 May - 2 June 1972

Organized by Jacques Proust

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PREFACE

The evaluation of the educational activities in which they are interested is a relatively novel idea for national and international development assistance agencies. Barely ten years ago the major problem was to encourage the extension of the various components of educational systems, whose main defect, from the democratic, social and even economic point of view, seemed to be their insufficient development. It is true that external aid continues to be accorded today, as it was yesterday, to countries which ask for it and for objectives which they lay down with complete autonomy; but a dialogue has none the less been started between the receiving countries and the donor agencies with a view to the better formulation of priorities in the choice of projects to be financed or sectors to be developed - priorities which are increasingly bound up with new educational policies.

In view of the volume of national and external financial resources involved, and their relative limits in relation to the needs, this dialogue increasingly tends towards maximising the effects of such aid and of the educational policy in which it is integrated, with a view to the economic, social, democratic and other development of the country concerned; this search for effectiveness leads to the attempt to establish criteria, procedures and techniques designed to assess the value of the priority targets set, the adequacy of the means deployed to achieve them, and the quality of the results.

An 'evaluation component' therefore tends to be introduced into all programmes and projects and, even beyond that, into educational policies themselves. Is this really a novel feature?

The idea of evaluation, however novel it may seem, has always been present, under other names, in the organisation of educational systems. Every teacher and every institutionalised educational system has always sought to measure the results of the process of apprenticeship in which the pupils are engaged; daily marks, monthly essays, terminal examinations and even inspection systems have always been, among other things, checks on the 'internal efficiency' of educational systems. Similarly, through the formulation and progressive elaboration of curricula, educational administrators have always sought, no doubt by an empirical approach, to meet the educational needs of man considered both as an individual and as a member of the contemporary social body - or of a social group.

Preface

Does the concept of evaluation, as currently applied today, differ fundamentally from the effort which all educational systems have always made, in more traditional forms, to assess the value of their aims and their results? A too positive answer does not strike us as appropriate. It is, however, certain that the approach to these questions has been singularly modified and enlarged, partly owing to progress in the techniques used and partly owing to a greater recognition of the social and economic implications of the development of educational systems. What used to be merely a routine operation of supervision and progressive adaptation of the system has become, in many respects, the medium for a re-appraisal of its aims and organisation.

It would, of course, be highly presumptuous to think that in doing this the second half of the twentieth century is making a total innovation. Many countries in other ages, often on the occasion of a political or social revolution, have had to face a renewal of their educational system as sweeping as any which can be envisaged today, but what is striking at present is the generalisation of this state of affairs both in the industrialised countries and in the developing countries.

In the industrialised countries, the progressive establishment of universal primary schooling during the nineteenth century, and the subsequent development of secondary and higher education, responded to generous and liberating aspirations as much as to economic needs, and the whole construction of the school system was identified with democratic and social ideals. And now suddenly the school, which only yesterday was still regarded as the dispenser of all benefits and the object of universal respect, finds itself, like many other institutions, to some extent de-sanctified. The traditional attitude of asking "What is good for the school?" is increasingly yielding place to another question, namely, "What is the good of the school?" Naturally, this new attitude is bound up with political, social or economic factors specific to the different countries, and the problem nowhere arises in quite the same terms.

To some of the factors of challenge already known in the industrialised countries there are added, in the so-called 'developing' countries, specific factors which are even more acute.

Enthusiasm for the school as an instrument of liberation and human advancement, of economic and social progress, has not really waned, but we are faced with a two-fold difficulty; in the first place, resources are lacking for the rapid construction of the desired school structure, and in the second place, existing educational systems are increasingly regarded, rightly or wrongly, as inefficient and ill-adjusted to the solution of social and economic problems as they arise in many countries. Hence this search for new educational policies, new strategies based on a better choice of priorities, innovations in teaching, better use of existing facilities, and so forth.

As has been said, a continuing process of assessment of the value of objectives, means and results is an essential condition of the rationalisation of educational systems in the developing countries. In theory this process should already be integrated into the formulation and execution of educational plans, where they exist; in practice, even under the best conditions, the situation in this respect still remains very imperfect.

Preface

The Seminar organised in May-June 1972 by the International Institute, with the support of SIDA, was not designed to offer participants ready-made novel solutions affecting the different levels, forms and stages of the evaluation process. More modestly, the Institute sought to confine itself, on the basis of certain concrete case studies, to sensitising, if need be, the interest of the participants in the various possible or desirable aspects of evaluation and, above all, to encouraging a wide exchange of views on the implications of experience already acquired. The Seminar Report, excellently drafted by Mr. Jacques Proust, sums up this week of discussions, during which it is hardly necessary to say that unanimity was not attained on all points, so widely do the degrees of acceptance of this concept of evaluation still differ.

The general conclusion which emerges is nevertheless very clear; all the international or national aid agencies represented at the seminar and all the national experts invited in their personal capacity are conscious of the need to improve existing evaluation procedures, some of which hardly rise above a simple material verification of the execution of projects. All the participants are conscious, also, of the political and technical difficulties and of the cost of the effort which needs to be made. It is, of course, proper for each of them to develop its own action, but the general interest demands that the exchange of experience, launched particularly on the occasion of this meeting, should be actively pursued in future. It was suggested that the IIEP, in view of its international position and its statutory function, should take the lead in this field.

The International Institute will certainly act accordingly, within the limits of its means, by developing its own experience in this field through the execution of its research programmes, and by systematically continuing to organise meetings such as this seminar, during which topics which have so far only been touched upon can be successively studied in depth.

Once again our thanks are due to the SIDA which has provided us with the opportunity and the means to organise this Seminar and which has made an extremely important intellectual contribution to the discussion; they are also due to all the other participants whose written or oral contributions resulted in a frank, realistic and, in the last analysis fruitful, exchange of views.

Raymond Poignant
Director, IIEP

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REPORT OF THE SEMINAR

by J. Proust

The Seminar organised with the support of the Swedish International Development Authority (SIDA) was held at the International Institute for Educational Planning from Monday, 29 May to Friday, 2 June 1972.

The 14 aid agencies (represented by 27 participants) and the 18 experts who attended the Seminar discussed and exchanged views on the problems raised by the assessment of aid for educational projects, especially in the developing countries.

The proceedings took the form of a round table discussion and the present report is designed to summarize the debates.

In his introductory address, the Chairman, Mr. Raymond Poignant, Director of the IIEP, recalled the importance which should be attached to questions of assessment. He urged the need to extend the effort of assessment both to the education policies in which the dispersed projects or programmes financed by the agencies were integrated and to those projects and programmes themselves. He suggested that the first step should be to ascertain what improvements had been made in methods of assessing the internal effectiveness of education systems, which always largely conditioned the validity of assessment work. The Chairman desired to make it clear from the outset that, in assessing policies, there was no question of attempting to judge the educational assistance policies of the different agencies, but, more generally, the aim was to assess the whole education policy in which external multilateral or bilateral aid was integrated.

The need for assessment

At a time when "the world education crisis"1/ has been under discussion for some years, it is natural to ask not only "what is good for the school?", but even more "what is the good of the school?" even if the criticisms levelled against educational institutions are not universally valid.

1/ Philip H. Coombs, 'The world education crisis; a systems analysis'. New York, London, Toronto, Oxford University Press, 1968.

In the developing countries which are of more special interest to the aid agencies represented, there certainly seems to be flagrant maladjustment. Among the arguments put forward, first place is given to the continual rise of unit costs and the inability to extend schooling. From the point of view of development, the question must be asked whether expenditure on education can go on increasing if it is desired to obtain the optimum allocation of resources.

This state of affairs means obtaining greater effectiveness at lower cost; that is the whole problem of assessment. Unfortunately, this attitude is not common in Ministries of Education.

Furthermore, while it is agreed that, in general, education systems are often too rigid and can survive only by innovating, it is quite clear that each innovation must be introduced only with caution and its effectiveness as well as its cost must be assessed as precisely as possible. The renovation of education systems will be feasible and real only if appropriate assessment methods are finalised.

There can be no improvisation in the matter of education and the many experiments launched all over the world - such as educational television in the Ivory Coast - should be assessed. A feedback between objectives and results, thanks to a process of assessment, would make it possible to adjust, and, where necessary, to revise the objectives.

The need for assessment being recognised, the question is, how to set about it?

It was suggested that different levels or degrees of assessment should be distinguished; different forms and different moments in the process.

The different levels to be considered might be :

- an overall level : this is the general diagnosis of the system, or, more generally, the level of analysis of education policy. Only assessment at this level makes it possible to judge the choice of priorities and the general results obtained;
- an operational level : this is the assessment of programmes or projects.

The different forms of assessment

Throughout the seminar proceedings a slightly artificial, but useful distinction was drawn between the internal effectiveness and the external effectiveness of education systems. This distinction is found in the assessment of internal effectiveness which measures performance in the light of the system itself. Traditionally, success in final examinations is the primary element in internal assessment. The later proceedings of the seminar indicated that a number of other elements are, or should be, now taken into account in assessing internal effectiveness.

In his opening address, the Chairman asked 'what is the good of the school?' It does not seem possible to find the answer without also assessing the external effectiveness of the system. This assessment should be made from a number of different economic, social and cultural points of view... The aim should be to assess the quality of the 'output' of the education system in the light

of the needs and hopes of society and of individuals themselves. Does the value added to the individual by the system meet the expectations of the individual and of society? Does it lead to progress, in the direction either of economic of cultural development? How can operation criteria be applied in such fields?

These different levels and forms should be associated with different moments at which the assessment can or should be made. In principle, assessment should be a continuous process, which, for a simple project, may need several years. If this seems the ideal solution, it is perhaps not very realistic in the case of modest projects, having regard to the resources needed. It will be necessary to determine the objectives of the proposed assessment, and very certainly to choose between them and to select the resources to be applied in the light of cost.

The number and magnitude of the outstanding problems are impressive. The Seminar did not profess to solve them, but, more modestly, to compare the different points of view of the aid agencies and the experts of some of the receiving countries on these problems so as to clarify them and bring out the lines of action it is desirable and possible to follow in this field.

CHAPTER I

THE ASSESSMENT OF EDUCATION POLICIES

If it is desired to assess the possible effectiveness of an aid programme, it is important to know whether it is well-timed. This timeliness depends on the context in which the programme (or project) is to be integrated and, in particular, on its adaptation to the education policy of the receiving country. This policy must therefore be analysed and assessed (or evaluated). It is hard to imagine an educational assistance programme, and still more a limited project, having a favourable effect if it is not in line with the national education policy of the country assisted.

Furthermore, the aid agencies all have official or unofficial aid policies and often preferential sectors for assistance. It is natural that they should prefer to act in keeping with their own policy and in their own sectors.

For this purpose, they need not only a detailed analysis of the education system, but also an assessment of education policies regarded as an overall planned approach to the development of the whole education system. Such an assessment should make it possible to judge all the consequences of the development of education systems taken as a whole on the different aspects of national life.

A number of papers in the seminar file 1/ proposed methods of sectoral analysis and the Chairman stressed the importance which he felt should be attached to intra-sectoral and inter-sectoral coherence and he suggested looking for operational criteria to test the coherence of education policies.

Discussion on this subject was very outspoken and lively.

While the need for an overall assessment of education for any given country was not challenged, the responsibility for making such an assessment was discussed. The participants clearly indicated that the aid-receiving country had complete responsibility for such action, but could call upon outside assistance if it felt the need from a technical point of view.

The representatives of the United Nations agencies particularly stressed that it was their duty to encourage all useful studies in this field so as to aid Member countries to make progress along these lines.

On the other hand, it did not seem possible to agree on the lines to be followed by this assessment. In the presentation of this first head of discussion, assessment and coherence tests were treated in the same way. Some participants wanted to draw a distinction on the ground that inter-sectoral and intra-sectoral coherence could only indicate equilibrium, but not the soundness of

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1/ Documents Nos. 4 and 6.

that equilibrium. Several participants emphasized that the 'manpower approach' to educational planning had not yielded the expected results, especially in the developing countries. It would be dangerous to assess an educational policy on the basis of a coherence test in this direction.

Other participants thought it idle to look for coherence between the social field and the economic field when the state of affairs in the developing countries seemed to indicate that this coherence was not to be found anywhere.

Nearly all participants said that sector analysis should be very large and the ideal would be to incorporate the whole social sector and that, in default, in diagnosing education systems, it was desirable to assemble and analyse all the data and studies available about other social sectors.

Sectoral analysis presupposes an analysis of existing objectives and Document No. 3 suggests a method of approach to the analysis of aims, in six main phases :

- description of the sector;
- identification of the elements of policy;
- distinction, specification (breakdown) of the elements of this policy (aims);
- ranking of these objectives or aims;
- analysis of the links between different objectives at different levels (tests of means and ends);
- analysis of possible conflicts or contradictions between objectives at the same level.

These stages should lead to the specification of the objectives of education which are often not very explicit in the developing countries.

The paper presented by the World Bank representative goes further and urges the need - if the aims and objectives are too vaguely expressed - to define alternative aims and objectives. This paper also raises the issue of the compatibility of the aims and objectives of education with the economic and social imperatives of satisfactory external productivity, thus indicating that the agencies are concerned by the problem of coherence.

This study of coherences, particularly inter-sectoral coherence, should, in the opinion of some participants, make it possible to assess the effectiveness of a policy and, in the opinion of others, to judge the execution of a policy and therefore to assess the means of that policy.

The question therefore is whether we are to judge a policy itself or merely its execution without passing any value judgment on the policy itself.

As indicated above, all the participants agreed on this second aspect of assessment which should make it possible to measure the gap which sometimes exists between the Plan and the facts, which leads to an examination of the objectives of education and, in the last analysis, to the question whether the policy followed is feasible. The disagreements referred to above may, perhaps, after all be a false problem since it is quite natural to test the major disequilibria and effectiveness of a policy by reference to its results.

Evaluation of educational systems

A certain number of criteria for assessing the objectives of an education policy were suggested in Document No. 1 presented by the IIEP. Without underestimating the difficulty of such an exercise which, in the light of the interdependence of the different factors, might lead to 'passing judgment on the forms and methods of economic and social development chosen by the different countries', the idea of trying to assess the coherence of the objectives of education in relation to the other economic and social objectives of a given country is an approach which should be very thoroughly studied before being dismissed out of hand.

While some participants voiced their apprehensions about a sometimes ambitious global approach and suggested that micro-analysis might yield good results, most of them recognised that the micro and macro approach were both indispensable and that, in particular, the global study should make it possible to assess economic coherence and to detect over-dangerous disequilibria which might arise in the allocation of resources and might, in the medium term, compromise the external effectiveness of any education system.

Some comments were made on the criteria suggested in Document No. 1. It is, however, worth citing some of them here which suggested introducing indicators which do not seem to have been used in the known typologies.

In particular, with regard to indicators of economic coherence, it was suggested that a new classification of educational expenditure should be used which would bring out :

- the inert or cyclical expenditure necessary and sufficient to perpetuate the systems, such as teachers' pay and other running costs;
- and, innovative expenditure or modernisation or change.

Another index of economic coherence is to be found in the adjustment of the output of the education system to manpower needs in conjunction with the pattern of incomes.

With regard to the elements of social coherence, the members of the Working Party stressed the need to work out finer indexes, especially for the regional distribution of educational facilities and population. These indexes should give a clear picture of the territorial distribution of educational facilities in relation to population density.

The members of the Working Party, very conscious of the difficulties involved in the approach to the social sector, greatly hope that operational criteria will nevertheless be studied and that the more easily available criteria of economic coherence will not obscure this essential aspect of the assessment of education policies.

After discussing the elements of assessment of coherence within the different sectors (economic, social, cultural), the members of the Working Party would have liked to tackle the question of inter-sectoral coherences, which would have meant studying the interrelations between the different criteria, but they thought that this came within the field of research and could not be undertaken in the context of the present meeting.

CHAPTER II

ASSESSMENT OF PROGRAMMES AND PROJECTS

A great many of the documents presented by participants in the Seminar related to the problems raised by the assessment of programmes and projects. It is quite certain that this is the field to which the agencies are most sensitised and where they have made the greatest methodological efforts but there is still a great deal to be done in many cases to get beyond the stage of a simple certificate of performance. For convenience of discussion, it was agreed (as stated at the beginning of the report) to distinguish, no doubt somewhat artificially, between internal effectiveness and external effectiveness.

The problems raised by the assessment of the internal effectiveness of education systems were discussed at the Seminar for two days and are the subject of Chapter III of this Report.

The situation with regard to the assessment of external effectiveness was summed up by the statement of the representative of an international agency to the effect that in the past his agency had taken account of economic criteria only and was now trying to take into consideration certain cultural and socio-economic indicators, but that, in spite of everything, the criterion of 'manpower production' was still the one which carried most weight in the final decision to finance a project.

A certain number of recent examples of the application of the assessment process are given in the seminar documents and one of the most elaborate examples relating to the educational television project in the Ivory Coast was presented by one of its principal authors.

The discussions on Documents Nos. 6 and 7, in particular, gave a broad survey of the methodologies applied and the 'compendiums' used.

The thinking of the Seminar centred mainly on the problems assessed the socio-economic impact of a programme or project on a given environment. In this way, the question again arose of defining the objectives of the policy followed, since the results expected of a programme cannot be judged crudely in cost-benefit terms, but rather more in the light of a given policy.

As noted in the previous Chapter, several agencies recommend that special attention should be paid to studying the present aims and long-term objectives of the education system. If these aims and objectives are not sufficiently defined, then "the difficult but necessary task must be undertaken of defining alternative aims and objectives. It is only in the light of this new definition that the system can be usefully analysed". Some participants recalled what had been said about the responsibility for assessing education policies and stressed that the agencies should encourage recipient countries to define their own objectives, according them technical assistance if necessary.

The sequences of the various assessment processes proposed in the seminar papers presented by the participants are substantially the same and take account of the "different levels, forms and moments" distinguished by the Chairman in his opening address. 1/

The participants agreed that assessment should be a continuing process integrated in the education system. It should be a permanent feature of the planning process. They recognised, however, that under existing conditions, neither the agencies nor the national authorities could hope for such a result in the near future.

They must therefore try to make some progress and move on from merely verifying the execution of a programme or project to a finer analysis of its effects.

The following stages were found in the different alternatives proposed :

Preliminary sector analysis :

Phase 1 : Study of aims and objectives.

Possible formulation of alternative aims and objectives.

Phase 2 : Structural analysis of education system.

Adjustment of the nature of the system to the objectives defined in Phase 1.

Phase 3 : Analysis of the 'technology' of education (teaching methods, management, staffing, decision-making, etc.).

Phase 4 : Attempt to organise and programme the system so that it meets the objectives more satisfactorily.

Phase 5 : Analysis of costs and financing, and internal effectiveness.

Phase 6 : Proposal of a programme of action including a list of priority projects and pre-investment studies.

During the project

In the case of a large scale project such as that presented at the seminar by the Ivory Coast, an assessment system can, in some cases, be built into the project. It is a management tool which, by means of feedback, allows immediate corrections to be made throughout the project. This 'time and progress schedule' system consists of collecting facts and figures and comparing them with the scheduled progress of the programme or project. But, as one participant pointed out, in order not to overload the system, it is important to know "what is worth noting and what is not". That is no doubt where the difficulties lie, since in educational matters, the social and economic consequences of a project may become apparent only in the medium- or long-term and it is difficult during the course of a project to judge what indicators will subsequently be valuable in assessing future changes in the behaviour of a group of individuals.

1/ cf. page 4, paragraph 7.

Document No. 5 proposes a 'special assessment system' consisting of verification in greater depth by means of micro-analytical case studies, and, in particular, the study and analysis of secondary facts. In this approach to the assessment of a programme, the important thing, in the view of the authors of the paper, is to rank in order the objects of the programme and to examine the interrelations between the different objects. Each object, constituting a stage in the edification of the project should be a stone in that edifice and the achievement of a number of objects should lead to the achievement of a higher object. The chain formed by objects and means should lead to the main object of the programme (see Document No. 5).

The discussions on this field of assessment were limited by shortage of time. It very soon became apparent, however, that while it was relatively easy to measure the aspects relevant to internal effectiveness, the same was not true of external effectiveness, particularly if it was desired to go beyond the too narrow approach of the equation 'education-employment'.

Research efforts should be undertaken along these lines and the IIEP is prepared to co-operate actively in any action undertaken in this sector.

CHAPTER III

ASSESSING THE INTERNAL EFFECTIVENESS OF EDUCATION SYSTEMS

This sector of the assessment of education systems was introduced by three addresses :

- Statistical inquiry into the internal effectiveness of education systems, by G. Carceles (Document No. 11).
- Assessment of education systems with a view to improving their internal effectiveness, by N. Kravetz.
- Examples of assessment; study of the effectiveness of the education system, operations and development, by N. Davis.

The first address, by Mr. G. Carceles introduced the most recent work of the Unesco Office of Statistics on the models of internal effectiveness of education systems.

This work, based on the measurement of the ratio between the intake and the output of education systems, relates to wastage. It studies the ratios between repeating and drop-out and the age-sex ratio, etc. for each of these phenomena. This attempt to identify the characteristics of wastage and its influence on real costs is particularly valuable since it is dynamic and is concerned with flows rather than with statistics. Some points attracted the particular attention of the participants, especially :

- the prediction value of the rates of repeating and drop-out observed;
- failure or success in a given year of studies and its dependence on earlier results.

The following is a summary of the main comments made by the participants following Mr. Carceles' address.

The different causes of the various kinds of repeating should be ascertained. Some instances of repeating and drop-out were due to shortcomings in the reception structure (schools not providing the full cycle, fixed rates of transition, etc.). Some instances of repeating could be described as 'psychological'. Some teachers in fact thought that the subject they taught was difficult and the time allowed was insufficient.

Some participants stressed the pejorative connotation of the terms employed, such as wastage and drop-out. It would be better to talk of 'leaving', which involved no pejorative value judgment. Leaving of various kinds might have very different causes, including economic, nutritional and other causes which could not be attributed either to the school or to individual aptitudes. It was for these reasons that the Unesco Office of Statistics spoke of ineffectiveness and not of wastage.

The addresses by Mr. N. Kravetz and Mrs. N. Davis introduced the different tentative approaches now being studied, to the measurement of the internal effectiveness of education systems.

It was recalled in the first place, that it was essential, in order to undertake an assessment with any hope of success, that the objectives of the education system to be assessed should present a certain number of characteristics : they must be concrete, pertinent, feasible and quantifiable.

Mr. N. Kravetz then introduced his indicators of the internal effectiveness of education systems, while making it quite clear that while there was a wide range of factors which reflected the effectiveness of education, those which were more specifically educational in character would provide the most valuable information after they had been studied with care, and that it was therefore preferable to concentrate on the educational content rather than on the non-educative aspects.

The statement previously made by Mr. Carceles showed the value of statistical research into the flow of pupils. Mr. Kravetz proposed that this work should be supplemented by research into the causes of repeating and drop-out, a study of the possibility of increasing enrolments at certain levels and of seeing whether the relations existing between these three factors could be improved otherwise than by making regulations.

The indicators to be taken into account if it was desired to make this method not only diagnostic, but also therapeutic, must be regarded as the reflection of the decisive factors. The indicators of the internal effectiveness of education systems were the result of conditions which existed within the system.

The data on enrolments and wastage were determined by other activities and by more fundamental relationships.

The decisive factors in internal effectiveness were to be found in the following six categories :

- pupils
- teachers and other staff
- curriculum
- administration
- premises
- parents, community and other clients

These categories reflected Mr. Kravetz's initial assumption that "what happens to the pupils is the essence of what happens to an education system."

The factors which determine internal effectiveness could then be considered within each category.

Thus, with regard to pupils, Mr. Kravetz distinguished five decisive factors :

1. Access
   - Enough places
   - Enrolments by sex
   - Enrolments by region

- Enrolments by social status category
- Existence of schools providing the full cycle
- Objectivity of methods of selection and promotion

2. Assiduity
   - Attendance of enrolled pupils
   - Compulsory schooling
   - Length of studies before leaving
   - Re-enrolment of pupils who have left
3. Pupils' results
   - Determination of degree of knowledge and progress made
   - Determination of degree and progress of affectiveness
   - Determination of aptitudes
4. Services rendered by the school to pupils
   - guidance, pupil-teacher relations
   - boarding and lodging facilities
   - health services
   - transport
   - other services
5. Pupils' reactions
   - Pupils' statements of their own impression of the effectiveness of the school
   - Behaviour and actions of pupils during schooling

Mr. Kravetz then distinguished various factors which should be considered for each of the six decisive categories he identified. He stressed the direct and indirect relations between the different elements which may have a decisive effect on internal effectiveness.

The speaker emphasized then in addition to the six categories distinguished which determine and condition the effectiveness of education, two supplementary factors must be added, namely educational research and development, as well as the planning of the system which, althought they are not operations directly connected with teaching institutions, nevertheless include functions which may have an influence on the effectiveness of the system.

The last branch of this introduction related to the measurement of the decisive indicators. Some of these criteria could be measured but others with a purely qualitative aspect were harder to quantify.

Mr. Kravetz then suggested a certain number of measurement concepts which should make it possible to establish relations between different elements. He proposed making use of the whole arsenal of modern techniques, such as PERT, observation techniques, analysis of perceptions, sociometric methods.

While it was recognised, Mr. Kravetz said, that the application of aptitude tests and knowledge tests was now feasible (provided the necessary resources are available), the measurement of criteria of an affective character reflecting attitudes, interests, etc. was much more hazardous; it required the establishment of biographical records and scales of assessment and the availability of specially trained staff.

In these circumstances, Mr. Kravetz stressed that a great deal remained to be done to perfect measuring instruments for the educational process, but that, even at the present stage, greater importance should be attached to the instruments already available, however imperfect they may be.

Mr. Kravetz ended his presentation by asking what role technical assistance could play in assessing the effectiveness of the education system.

In the discussion which followed, a number of questions were raised.

In the first place, the volume of elements which may play a part in internal effectiveness is such that some participants asked whether the cost of such an undertaking would not be prohibitive and whether one should not look for a few key-determinants to which preference should be given. Naturally, the whole range of assessment techniques should not be brought into action until the techniques with the highest priority and the greatest effectiveness have been applied.

The level of a pupil is a highly relative concept and several participants recalled that the objectives of education systems still too often remained élitist and in conflict with the present tendency towards mass education. Effectiveness meant attaining an end which had been proclaimed, and it might well be asked whether the objectives of existing systems were not outdated and too ambitious. This led to an apparent effectiveness which was often poor.

The means of palliating this maladjustment of the objectives to the system1/ is perhaps, as suggested by the Chairman, by Mr. Kravetz and by certain participants, to look for the best ways of measuring the 'value added' to the child by education and in parallel to make the necessary effort to lay down realistic and explicit objectives.

The last address on the assessment of internal effectiveness given by Mrs. N. Davis, indicated the broad lines of recent international studies in this field :

- International educational achievement study (IEA)
- National assessment of educational progress
- National achievement testing programme
- International study of primary drop-out

1/ This may seem paradoxical since, in principle, the system should adapt itself so as to attain the objectives.

These studies, especially IEA, have tried to measure the educational results achieved (knowledge of mathematics for the first phase of IEA) and to relate them to the factors which seem to influence them : socio-economic environment, school, other environment, with a view to trying to measure the productivity of the different teaching systems and methods.

The techniques used are standardised tests and checks.

Mrs. Davis then recalled that until they could generalise the standardised tests throughout their territory, the developing countries were constrained to use the results of traditional examinations set by teachers who were mostly untrained and inexperienced in the matter of examinations.

Some attempts were being made in the developing countries to work out national tests designed to improve the assessment of individuals in relation to their aptitudes; non-verbal tests of the formation of concepts, understanding tests, etc. In general, there was a tendency to depart from the classical questions of the dissertation type in favour of simple objective tests which can be marked mechanically.

The speaker went on to say that the conclusions of the National Achievement Testing Programme in the United States were that the usual examinations showed :

- how far a pupil was above or below the average marks of the group with which he was compared;
- how far the average marks of a class or school were above or below the average of the group with which they were compared.

The subsidiary conclusions were also very important :

- there was a very marked difference between examinations designed to make a selection or sorting out among pupils and tests designed to measure how far the objectives of education were achieved;
- while traditional examinations relating to knowledge were designed to measure individual differences and to provide exact average marks for classes or schools, assessment exercises could provide information on the overall progress of school children and not merely data on the knowledge of the 'average child'.

Mrs. Davis concluded by calling attention to the fact that, while assessment at national level was very often difficult, if not impossible, because the objectives set for education systems were too comprehensive and defied all analysis in concrete terms, very important assessments were, on the contrary, perfectively feasible for smaller units such as provinces, towns or establishments and could greatly help to improve effectiveness.

The following comments were made in the course of subsequent discussion :

- It should be noted that the assessment of education was, on the one hand, general in respect of objectives and specific in respect of results.

- Some participants wondered whether there was in fact any fundamental difference between traditional examinations at national level and standardised tests or examinations. Was not the difference rather one of form? It was true that the objectives of assessment pursued were different in the cases presented, but were the techniques used totally different?
- Other participants expressed different and even contrary opinions. In their view, the traditional examination and the test were two different instruments which some people regarded as complementary but the examination, while it was an obstacle which might be motivating, could also be psychologically dangerous since it laid too much stress on failure. The examination judged the pupil whereas the test judged the manner in which the message had been conveyed.
- Assessment, if it was aimed at a better knowledge and, where appropriate, measurement of the value added by education, needed measuring instruments, and research in this field seems far from complete.

To sum up these discussions on the assessment of internal effectiveness, it seems that the studies so far made are still too much in the domain of research and that the techniques used, while they are not challenged, necessitate substantial resources which cannot always be found.

The determinants of internal effectiveness presented by Mr. N. Kravetz are not challenged, but if they are to be operational, it is desirable to identify those which carry the greatest weight in measuring performance, and to give them the preference in studies.

While the assessment of the terminal pattern of skills of the individual is important for the society into which he enters, his initial pattern should also be known so that the value added can be measured by difference.

Finally, and as in the two other chapters of this report, the constant concern for a better definition of objectives should be noted, without which any assessment can only remain very superficial.

Conclusion

It emerged from the whole of the discussions that the subject discussed at this Round Table requires still further systematic exploration. The divergences of view which sometimes became manifest are symptomatic of the weaknesses of the methods and techniques at present available.

In fact, except for questions of the measurement of internal effectiveness for which the experimental stage has been substantially reached, the other aspects of assessment (external effectiveness, long-term impact of a project on its environment, etc.) are still in the field of methodological research and the few rare experiments which have been made with cost-benefit analysis cannot be deemed to have yielded practical results of general application.

It was confirmed in the course of this Seminar that an essential preliminary to any assessment is the need for a more realistic and concrete definition of the objectives of education, without which assessment can only be a certificate of performance.

Another essential preliminary on which the participants were, however, less categorical, is the need to set the sector analysis of education in the wider context of the whole of the social sector and to throw light on the whole by an assessment of the education policy of the country in question.

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This Seminar can be said to have had the merit of bringing to light existing shortcomings in the assessment of education and the participants recommended the encouragement of research in this field and the training of specialists. They suggested that the IIEP should envisage devoting part of its future programme of activities, both in research and training, to these questions.

Finally, some participants suggested the standardisation of the information requested from assisted countries and the centralisation of these data in a body such as the IIEP.

Seminar documents

Document No. 1

POSSIBLE CRITERIA FOR EVALUATING EDUCATION POLICIES

by Raymond Poignant
with the assistance of Jacques Hallak and Jacques Proust

INTRODUCTION

The quantitative and qualitative development of educational systems comes about by implementing a combination of programmes or projects 1/, financed mainly by national resources and supplemented by various forms of national or international external aid. These programmes and projects involve the various levels or sectors of general, vocational and technical education organised for the younger generation or for adults, within the school system or 'out-of-school'.

Each of these programmes or projects is one part of a whole and this whole reflects, implicitly or explicitly, the choice of priorities within the education system or in favour of the education system. Evaluation of individual programmes or 'projects' is a process which is beginning to be given serious consideration by many national or international organisations, and most of the papers presented at this seminar deal with this type of problem. However, it is a question whether on this level of evaluation ('programmes' and 'projects') and in close relationship with it, another type of appraisal should not be superimposed which would cover the 'education policies', conceived as an over-all and planned approach to developing the education system as a whole. Indeed, the evaluation of 'programmes' and 'projects', however vital it may be, can only partially portray the value and effectiveness of education systems, and it would undoubtedly be of greater value to be able to judge an 'education policy' as a whole or, in other words, the consequences of the development of the education system taken as a whole on the various aspects of the life of the nation.

1/ These programmes and projects are relatively clearly explicit when financed by external aid; when financed by the national budget they are generally much more implicit, save where the country concerned uses programme budgeting, which is the exception rather than the rule.

Such an endeavour would appear superfluous insofar as education is considered as beneficial per se, that it constitutes the 'priority of priorities' and that the sole problem is to increase it without having to consider any further the consequences and effects of its development. Today, this attitude is condemned by all those who, rightly or wrongly, but nevertheless in an increasing majority, claim that 'the vital question is not to determine what is good for the school, but what the school is good for'. Without considering the radical criticisms of those who attack the educational institutions, it is obvious that on all sides, including the most official international and national reports, more and more serious criticism is aimed at educational systems themselves.

First, we shall briefly examine the nature of the main criticisms currently levelled at educational systems and investigate their objective value. Secondly, we shall examine whether it is possible to replace these criticisms with objective criteria which would truly bring about an appraisal of the value and effectiveness of education systems and hence of the 'education polices' which govern them.

PART I : THE MAIN CRITICISMS LEVELLED AGAINST EDUCATION SYSTEMS

The reports from which the criticisms are drawn 1/ which are summarised below do not pretend to make philosophical judgements as to the general orientations of educational policies, but invariably consist of concrete statements on the educational policies in developing countries, and can be grouped together under the following main headings:

(a) They are poorly adapted to development.

The great majority of developing countries are primarily agricultural and yet everything in the education system combines to turn away from rural activities those who enrol in it. The school appears to be 'a foreign body in the environment and an uprooting factor'. This criticism is based on the drift of the younger rural generations towards the urban centres, and it does in fact seem that while the school is not the only factor in this rural exodus, it is one, and not the least.

Even where this education appears to be properly adapted, the imbalance observed between the efforts made for school enrolment in the towns (admittedly often under the more effective pressure of a rising proletariat) and the poor results achieved in the countryside, would not favour this latter environment.

The structures of these education systems, which are often the heritage of a colonial past, and their content, where not enough efforts have been made towards adaptation in subjects other than history or geography, prepare the student and adolescent much more for a 'white-collar job', i.e. one in the administration or tertiary sector, than for industry or, certainly, for agriculture.

1/ These criticisms are taken from a number of official reports which it would be of no interest to analyse separately.

These systems attempt to instill knowledge unrelated to the requirements of economic growth, whereas it would be better, especially at primary education level, to cultivate the natural qualities of adaptability of the children and to foster attitudes necessary for development.

At secondary and technical education levels in particular, those writing the reports point out that there is almost invariably a discrepancy between training and job descriptions. It does in fact appear that the 'order of importance of values of the subjects taught is unrelated to the current needs for development'. This often leads to a proliferation of students in the arts and, in a few rare cases, to the risk almost of a surplus of scientists and a general shortage of technicians or higher technicians. Engineers are trained without the supporting technicians, and professors of literature when there is a need for professors of technology. At the same time, the teachers that are trained at great cost are the unconscious cause of the perpetuation of the system.

At all levels, the inappropriateness of training with respect to the jobs available leads to unemployment of graduates and a 'brain-drain'.

(b) They are poorly adapted to the means available.

There are few developing countries with an education 'doctrine', and very often the final objectives of the education systems employed are far from explicit. The education policy in these regions takes the form of a linear expansion of the system left behind by the colonising power. This use of an élitist system for mass education has resulted in a deplorable output (high drop-out rate) and a financial burden out of all proportion to the possibilities of the State. The increasing share in national resources allocated to education results in certain cases in an annual increase in expenditure of three times the rate of increase of the GNP. The conclusion is that the 'strategy of linear expansion of education systems cannot in these circumstances go on indefinitely.'

(c) A low output results from the enormous means employed.

The very fast growth of school enrolments has not resulted in very considerable relative outputs. The stagnation of enrolment rates in the developing countries, together with the increase in the number (in absolute terms) of illiterate children, are not encouraging factors for the future.

In addition, the continuous increase in unit costs has not led to any notable improvement in the efficiency of the educational systems (constant drop-out rate, only slight increase in successful graduates, etc.).

(d) The system produces large numbers of poorly adapted and frustrated people.

In almost all developing countries, the selection methods within the school system result in a small priviledged minority still monopolising access to social and economic power. The great majority, who had hoped that, as in the recent past, the school would open for them the doors of an 'Administration' which is now saturated, have no alternative other than unemployment or a rural existence. Unemployment and parasitic dependency on the family are often the solution chosen because the school has not developed in the child the necessary abilities to progress easily and

dynamically in his own environment. The school and its authoritarian traditions do not favour creativity. The longer one stays in school, the more one is cut off from the realities and constraints of life. While the school gives a feeling of security, at the same time it stifles natural talent.

(e) Out-of-school education is poorly developed.

These criticisms as a whole are levelled against scholastic systems; nonetheless, some reports deplore that all too often educational policies set their priorities to the exclusive benefit of school establishments and to the detriment of out-of-school educational systems for the younger and adult generations. 1/

PART II : CAN CRITERIA FOR EVALUATING EDUCATIONAL POLICIES BE IDENTIFIED?

The question raised in the very title of Part Two shows that within the framework of this paper we do not claim to do more than set out the problems and indicate the main paths that may lead to evaluating educational policies.

A. Should one evaluate in terms of objectives or should one evaluate the objectives themselves?

(a) One can establish criteria for evaluating an educational policy by direct reference to the objectives - human, pedagogical, social, cultural, economic, political, etc. - that the educational system as a whole, or its various subsystems considered separately, propose to attain. This is the method generally applied when attempting to evaluate programmes or projects.

This concept of evaluation assumes that one can:

(i) Clearly identify the objectives of the system or of its various subsystems, which are generally implicit or couched in very general terms;

(ii) establish indicators or indices wherever one needs to assess how the objectives laid down are attained or are in process of attainment.

(b) However, this initial concept of evaluation appears too limited and assessment of the value of an educational policy must extend to the objectives themselves.

This level of evaluation is in fact certainly present at the start of the process of implementing 'programmes' and 'projects' during which the appraisal of the objectives to be attained and their order of priority governs the decision to be taken right from the outset of the operation. 2/

Can this method be used for judging the objectives of an educational policy as a whole?

1/ So far, this limited development has protected out-of-school educational systems from any serious critical analysis. The development of appraisal of 'projects' in this area would unquestionably enable a more objective judgement to be made.

2/ However, when the programme or project represents purely and simply an extension of the existing system (secondary schools, primary schools) or even one element in a current reform ('middle' schools), for example, the objectives of the operation concerned blend into those of the general educational subsystem concerned.

The difficulty here would appear greater, since in the last resort, because the various factors are interdependent, it is a question of passing judgement on the forms and methods of economic and social development selected by the various countries. Even if the political difficulty of such an exercise can be solved, the technical difficulty nonetheless appears formidable : to what objective references can one turn in order to judge the ultimate ends of an educational policy? In the last resort one could attempt to single out criteria of a philosophical nature, but in order to be pragmatic we shall provisionally leave these out of the discussion, though without belittling the importance of such criteria.

B. Is there any logical pattern in the development of educational system?

In the face of the difficulty in making absolute judgements of the ultimate ends attributed to educational systems, one might attempt to conceive the logical path that development of educational systems should follow in order to keep step with the successive stages of economic and social development, estimating the latter, for instance, with reference to the evolution of the structure of the active population, the GNP per capita, etc., i. e. with reference to the requirements and means of the country concerned. This would lead to a kind of dynamic typology of educational systems in correlation with the different levels of development, and this typology could be referred to in order to judge whether educational policies are adequate.

To explore such an approach, it is interesting to compare how the development of education systems has come about historically, both in the countries that are today industrialised and in the 'developing' countries. Were one to follow today the scholastic history of the industrialised countries since the start of the 19th century, one would find that most educational systems have followed comparable paths, taking into account on the one hand the requirements and possibilities resulting from economic development and on the other the evolution of social structures and the concept of democracy. As the French example shows, the rapid spread of industrialisation that occurred in the second part of the 19th century enabled primary education to be generalised but did not immediately lead to a corresponding development of extended studies (secondary and higher), and the 'school explosion' only occurred much later, in particular following the second world war and doubtless for reasons that were social rather than economic.

Table 1. France - Pattern of enrolment rates by education level (1800-1968) and income per capita (US $)

Level of education	1800	1900	1945	1960	1968
	%	%	%	%	%
1st degree (6 - 11 years)	30 - 40	100	100	100	100
2nd degree (12 - 17 years)	1.5	3	12	40	73
3rd degree (18 - 23 years)	0.6	1.2	5	7	13
Per capita income 1/	$ 135	$ 450	$ 660	$ 1 383	$ 1 931
Per capita GNP 1/	-	-	856	1 806	2 541

1/ Statistics previous to 1950 should be considered as orders of magnitude.

Table 2. Enrolment rates in Ceylon, Tunisia, Tanzania and Iran and GNP per capita

Level of education	CEYLON 1969		TUNISIA 1969		TANZANIA 1969		IRAN 1960		IRAN 1970	
	%	Age group	%	Age group	%	Age group	%	Age group	%	Age group
Primary	90.9	(6-13)	89.0	(6-12)	33.9	(7-13)	39.4	(7-11)	66.0	(6-11)
Secondary (1st cycle)	53.9	(14-15)	30.0	(13-15)	2.4	(14-17)	11.0	(12-17)	31.2	(12-17)
Secondary (2nd cycle)	11.6	(16-17)	17.4	(16-18)	1.1	(18-19)				
Higher	1.3	(18-21)	2.6	(19-22)	0.3	(20-22)	1.8	(18-21)	3.2	(18-21)
GNP per capita	$ 165		$ 229		$ 95		$ 213		$ 355	

Table 2 gives a number of similar statistics, though only for recent years, for a group of developing countries.

A comparison of Tables 1 and 2 reveals that the growth of 'formal' education systems in the developing countries if occurring in a different way from the process that was followed in countries that are today industrialised.

The situation of enrolment in France on the eve of the Industrial Revolution (1800) is fairly comparable to that of Tanzania in 1969 and, what is more, the level of economic development of the two countries is just about the same at these respective dates.

However, this analogy breaks down at subsequent stages of development if we refer to the examples of Ceylon, Tunisia and Iran; in these three countries, the development of secondary and higher education appears to have occurred particularly fast. The development of education in Iran during the 1969-1970 period is particularly significant. With a level of economic development slightly below that of France in 1900 1/, Iranian enrolment rates in secondary and higher education in 1970 are respectively ten and three times greater than they were in France in 1900; in contrast, primary enrolment in Iran in 1970 was far from complete (66 per cent).

It would seem that the 'social demand' for secondary and higher education amongst the new middle classes or the urban population has occurred in Ceylon, Tunisia and Iran much more quickly than in late 19th-century France. In other words, one might say that the factors of all kinds (social, economic, political, pedagogical, etc.) explaining the sluggish expansion of secondary education in France in the 19th century are no longer present - at least to the same extent - in the more advanced developing countries. This situation is the outcome of a combination of new economic and social factors and probably at the same time of a different school policy.

At the close of the 19th century, in most European countries, the primary school was almost universal, while the secondary school was still restricted to the children of certain small social groups : at the time, this situation raised no serious political problems.

Today, in the second half of the 20th century, the concepts of 'democratisation' and 'equal opportunity' applied to higher and secondary levels have to varying extents provided the inspiration for the education policies of the most advanced developing countries, following the example of the policies applied in the industrialised countries, and have led to rapid growth of second- and third- degree education, even though primary schooling is still not yet universal.

To sum up, it is evident that the various factors that in their time governed the slow progress of secondary education in the 19th century, in the countries that are now industrialised, are not to be found an identical form in the 20th century, and it is not to be wondered at that the 'developing' countries today display a relative advance, at comparable economic level, in secondary and higher education. However, this observation throws little light on the logic of the policies thus followed.

1/ To the extent that the 1900 French economy can be compared to the 1970 Iranian economy.

As soon as one rejects the path followed by countries that are today industrialised as a frame of reference the only possible way of assessing the value of the objectives of the educational systems in the developing countries is to attempt to judge their coherency with relation to other objectives and in particular those of an economic and social nature. In other words, aside from any historical or geographical reference, one should attempt to establish relationships of coherency between the development of education and the economic, social and cultural development as a whole for each country.

C. Can criteria be set for the coherency of the educational policy and economic and social development as a whole?

In practice, it is hard to see how the two approaches mentioned in paragraph A above (evaluation of results with relation to the objectives set and evaluation of the objectives themselves) can be systematically distinguished. Among other things, with a view to establishing coherency between on the one hand the objectives of the educational system, the means devoted to them and the results gained from them and on the other hand the main economic and social objectives of a development plan, it would not appear desirable to construct two separate systems of criteria.

As a result, one can confine oneself to discovering a set of criteria that would embrace:

- The means devoted to education, assessed with reference to national resources as a whole;
- the results obtained in the cultural, human, social, economic, etc., fields.

Merely as an example, we list below various standard criteria that could be retained.

(a) Economic coherency criteria

(i) Allocation of resources and costs

- proportion of national resources devoted to the educational system (in GNP, state budget, etc.),
- share of educational expenditures compared to other expenditures in the social sector,
- proportion of expenditures on education (considered as an investment in human capital) compared to investments in productive facilities,
- breakdown of educational expenditures by level,
- relative shares of expenditure on youth and adult education,
- magnitude of unit costs (per pupil/year 1/) at the various levels in the educational system and factors which govern the magnitude of the costs.

(ii) Coherency between the outputs of the educational system and manpower requirements

- magnitude of input and output flows of the system at the various levels and types of education,

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1/ Evaluted, for example, in terms of GNP per capita.

- criteria concerning the integration into the economy of those educated,
- various criteria concerning the quantitative and qualitative shortcomings of vocational and technical training compared to the requirements of the economy, etc.

(b) Pedagogical criteria

- ratings of internal efficiency (see papers presented on this subject during the Seminar),
- ratings of the quality of the teaching body, etc.

(c) Social coherency criteria

- regional disparities in the distribution of education,
- social discrepencies and sexual discrimination,
- influence of education on social mobility,
- influence of education on the growth of the cities.

(d) Criteria of a cultural nature

- the part played by education in cultural development,
- the adaptation of education to the national culture (what one might call the 'isation' of programmes),
- the proportion of foreign teachers in secondary and higher education, etc.

(e) Criteria of a democratic and political nature

- the educational system as a factor of national cohesion (the part played by education in citizenship),
- the educational system as a factor in participation by citizens in their responsibilities.

(f) Human criteria

It seems, in our view, that it is not possible to identify or isolate criteria for the part played by education in human fulfilment and happiness, even though this involves neglect of a fundamental aspect of the consequences of an educational policy.

PART III : CONCLUSION - WHAT USE COULD BE MADE OF SUCH CRITERIA?

The above enumeration is mainly confined to mentioning types of criteria: for each, more searching work should be carried out to specify its content exactly.

Right at the outset, it would appear that criticisms concerning the means employed and the results of an economic nature appear to be the easiest to establish (provided that the statistics are adequate) or, at least, those which can be quantified most easily; although delicate to handle, criteria of a pedagogical nature also fall within an area that has already been partly explored.

In contrast, major difficulties are encountered in attempting to establish indicators in the political, social, cultural and human fields; they could be determined only as a result of surveys conducted in the field by large teams of researchers. It is very often a question of analysing the differences in behaviour of groups that have received some schooling and other groups in order to judge the true effects of the educational system.

Assuming that all the statistical and research tools have been successfully gathered together to identify properly the burden of the educational system on the economy and the various types of result (good or bad) that society draws from it, to what type of conclusion might one tend?

It can clearly be seen where criteria of an economic nature lead:

- highlighting of the economic effect of schooling and attempts to optimise it,
- highlighting of high (or inadequate) unit costs,
- highlighting of the unsuitability of training imparted in relation to actual requirements, etc.

However, the 'social' or 'democratic' criteria will highlight disparities between regions and social groups, the inadequate training for citizenship, etc.; and the conclusion that would perhaps have to be drawn from this type of criteria would be to develop education yet further and improve its quality, even though its economic burden may already be excessive.

Furthermore, analysis of the efforts made for youth and adults will generally reveal the inadequate provision for adults and the need to do more.

In fact, however, within the framework of a medium-term (5-year) plan, it is common knowledge that one cannot do everything at the same time; all objectives cannot therefore be given the same priority. In most cases, the objectives with the greatest economic return should have priority 1/ though without neglecting what can be done in favour of other types of objectives within the limitations of the available means, the full use of which should be aimed at.

In other words, it is a question of attempting to identify major imbalances, the consequences of which are particularly harmful to the general objectives of development (too expensive an education system, output flows poorly adapted to needs, destruction of national cultural values) in order to attempt to correct them.

This approach does not imply that there is a single path for the development of education systems, even though in the nature of things developing countries are faced with fairly similar problems. However, it is important that the path chosen is not in conflict with the other options chosen by each country within the framework of the over-all prospects for its development.

1/ This realistic approach is the only one which in the longer term provides the possibility of successfully tackling more directly social, human and democratic objectives.

Document No. 2

TOWARDS THE DESIGN OF STRATEGIES FOR EVALUATING DEVELOPMENT ASSISTANCE

by A.R. MacKinnon

Any strategy devised for evaluating development assistance carries with it sets of assumptions and constraints and a nexus of objectives which can range from concrete production targets through to abstract, metaphysical goals for the future of man. Expectations on many levels exist in the minds of those requesting development assistance in education - from the learner who has seldom any choice in what is happening through to the governmental decision-maker who must balance sets of alternatives of many unequal weights. For those in charge of aid policies, expectations may have only tangential congruence with the expectations embodied in the request: general development policies are frequently outside his control; he is subjected to diffuse expectations from the arena of public accountability; he is continually harrassed by either a paucity or a plethora of information which may or may not bear on his responsibilities. The difficulties are manifold and the pressures are great for doing almost anything as long as something is done. It is understandable, accordingly, why there has been so little satisfactory evaluation of development assistance.

The active verb 'evaluating' has been used in the title of this discussion paper rather than the noun 'evaluation' in order to focus attention on an active process: long-term evaluating which might take account of what is a long-range continually varying development process. The extent of evaluation of any time point can be expected to vary as well as the procedures of evaluating. What should be aimed at, accordingly, are evaluation strategies which will produce evolving information systems relevant to the many facets of decision-making about development along a broadly-based continuum. Depending on the decisions which must be made at any time point, the conditions of evaluation will be changed. If 'development assistance' in a general sense involves change, then it must be expected that objectives will shift with the changing context. The evaluating strategies will have to vary accordingly.

These general propositions arise from a growing sensitivity to the problems of evaluating Canadian development assistance. Canada has had over twenty years' experience in the field of education assistance. Assessing assistance in terms of the objectives which were set at the outset

of the programme has been found to be extremely difficult: many development variables entered the process; varied programmes were occurring simultaneously in the recipient countries; changes in general development orientation were extensive. Limited ambitions and an often narrow perception of development in the early years prompted a Canadian policy of general offers. When requests came, a bulk responsiveness occurred. Assumptions were made that the resources requested were appropriate and would be available in the continuing quantity and quality needed. It was also assumed that decisions made for sectoral allocations would somehow be balanced out in the recipient country.

Generalized assessments which have occurred over the past twenty years prompted several policy shifts. General offers have been replaced by an integrated project approach. Areas of specialization for technical assistance have been delineated. Above all else, a broader view of development has begun to emerge. The reasons for such shifts are not hard to find: unemployed school leavers, for example, were occurring with alarming frequency; fragmented and discontinuous assistance often meant that social and economic problems of a long-term nature were left unresolved. In conjunction with this awareness a re-thinking of evaluation strategies is now emerging.

The approach is still experimental in nature and involves raising many basis questions. Can more effective development assistance be attained through intensive study in the early planning stages? By paying extensive and prolonged attention to problems enunciated by recipient countries and on a country-wide basis, would more appropriate information be generated for decision-making within the country concerned and for those in development agencies? By building a selective inventory of emerging learning resources in Canada, could a more satisfactory base be set for communication, for choices and for adaptation of the resources?

Pooling of all available and current written information about a country from as many sources as possible represents an initial procedural step. Although such information focusses primarily on development plans and problems, historical, political and cultural information is also included in the review. The aim is to sensitize those engaged in the evaluating process. Information is not viewed as management data which might assure increased operational efficiency; the objective of the collection is to 'in-form' evaluating teams so that divergent information when it recurs can be perceived as part of a board development picture. Further, the sensitizing is aimed at bringing together factors which perhaps should never have been separated in the first place. For example, a narrow sectoral approach to education can frequently cause fragmentation and efforts are needed to see many aspects of human learning in many diverse settings as part of a total development picture.

Such information must be supplemented soon by field site visits. A team approach has been adopted as a basis for comparing perceptions, and for introducing various disciplines into the generation of information. There are frequent additions made to the team depending on the current feature of the overall review. It must be emphasized that project definition is not a feature of field site visits. Whether the visits centre on identifying educational innovations in Canada, or in

recognizing manpower development opportunities in a northern Nigerian state, the relationship of the problems identified to a national or regional perspective is continuously sought. Above all, contacts are sought out who will challenge or re-define the essential issues.

After the field site visits, attempts are made to put the information into an accessible form to suit many purposes. Decisions are required, for example, at many administrative levels at home and abroad; there are short-term urgencies to be met and previous commitments to be honoured. The principal task is to reconcile the immediate issues with long-range planning. Above all, active communication must be maintained between those who are charged with the development policies in the countries concerned and those responsible for aid policies and their administration.

At this time point, short, intensive, in-depth studies may be required as part of project definition. Since the investigation may be narrowed down to a specific sector such as education, the problem is to maintain a balanced view of development in the face of decisions to be made in an isolated sector. The luxury of in-depth studies cannot be afforded in all the areas of development which might impinge on the decisions. It is imperative, accordingly, that decisions made for a given sector should include evaluation procedures which will include other important development variables. Thus, when decisions are made for a project in education assistance, evaluation must include effects on the social, economic and cultural life of the country. The preliminary, intensive country study can often serve as the basis for setting out the appropriate variables and the procedures for evaluation.

Given the long-term process orientation which was enunciated earlier, there would appear to be justification for continuing to explore such strategies on an experimental basis. Our experience to date shows that although the context of studies will vary greatly from country to country, the techniques employed in evaluating hold the possibility of larger applicability. It is possible that once techniques have been clarified, much of the responsibility of evaluation can be passed over to others, particularly to those in the countries concerned. The role of the evaluator then becomes one of refining appropriate procedures of studies, adapting those which have proven to be successful, and coordinating the evaluating process as it moves through its many phases on a broad front of development assistance.

Three principal considerations seem to hold some good possibilities for emerging strategies of evaluation:

1. Each programme of the future which is aimed at development assistance should have an evaluation design built in at the conceptual phase of project proposal. This design will be comprehensive and will provide for: assessment of the impact of the programme; modification of on-going projects; and decisions concerning the future of a given programme (focus, scope, continuance, termination).

2. Each evaluation design should be based on an analysis of the overall situational constraints and barriers to programme effectiveness. This analysis should include consideration of conditions and resources in both the donor and the recipient countries.

3. Future evaluation designs should provide for active participation of the recipient countries in the evaluation process.

We are now at the stage of experimenting with such considerations. It is our hope that these general evaluating strategies will increase the quality of development assistance programmes by providing for an increased flow of meaningful programme information between the recipient countries and the development agency.

Document No. 3

A SYSTEMATIC APPROACH TO GOAL ANALYSIS AND EVALUATION OF SOCIO-ECONOMIC EFFECTS (WITH SPECIAL REFERENCE TO EDUCATIONAL PROGRAMMES)

by G. Dahlgren

The main purpose of this paper is to discuss various methods to systematize goal formulations and ex-post evaluation procedures within the public sector.

Special attention will be paid to the methodological problems encountered when evaluating public investments guided by social rather than purely economic goals such as educational projects and programmes.

The present lack of social allocation theories and evaluation methods is striking in particular when considering that the corresponding fields in economic theories constitute major research areas. The increasing importance of the public sector and a unified social and economic approach to development underline the urgent need for a systematic analysis in this field.

Our level of ambition as regards these improvements must however be rather low as the theoretical base is missing as well as our knowledge about many of the important functional relationships within the public sector. We simply do not know the linkage between, for example, economic means and certain social ends.

The first question to be posed is of course what methodological approach we can apply in order to systematize and structure the problems to be discussed. Most of the available analytical tools as regards evaluation have been developed within the private sector and are - explicitly or implicitly - usually based on profit or growth goals. If these value premises of the method as such are not recognized when such a method is transferred into the public sector, it may very well be that the method chosen rather than the public goals stated directs the allocation decisions and indicates what should be considered a success or failure.

Assume for example that we applied the traditional market-based internal rate of return method as an allocative tool for educational programmes. This method presupposes that the benefits from the programme analysed are to be expressed in monetary terms. The incomes created through education thus become the benefits to be considered.

From this follows that the more income generated through an educational programme the higher priority it should be given because a high internal rate of return in economic growth terms is considered to be the best indicator of a sound and productive investment.

Let us now apply this philosophy to reality as it exists. Is it in line with the existing political will to consider education of women less important than education of men in all societies where the men traditionally get the better-paid jobs?

Should in-service training of high income night-club managers be given a higher priority in the development plan than up-grading of low income agricultural extension workers?

Only if the policy-makers answer questions such as these with "yes, of course" can it be assumed that their goals and the implicit goals of the analytical tool are in line with each other. If they, on the other hand, do not agree to the stated priorities then it must also be recognized that the market-based internal rate of return figure is not a relevant indicator for establishing educational priorities and evaluating the success of a training programme.

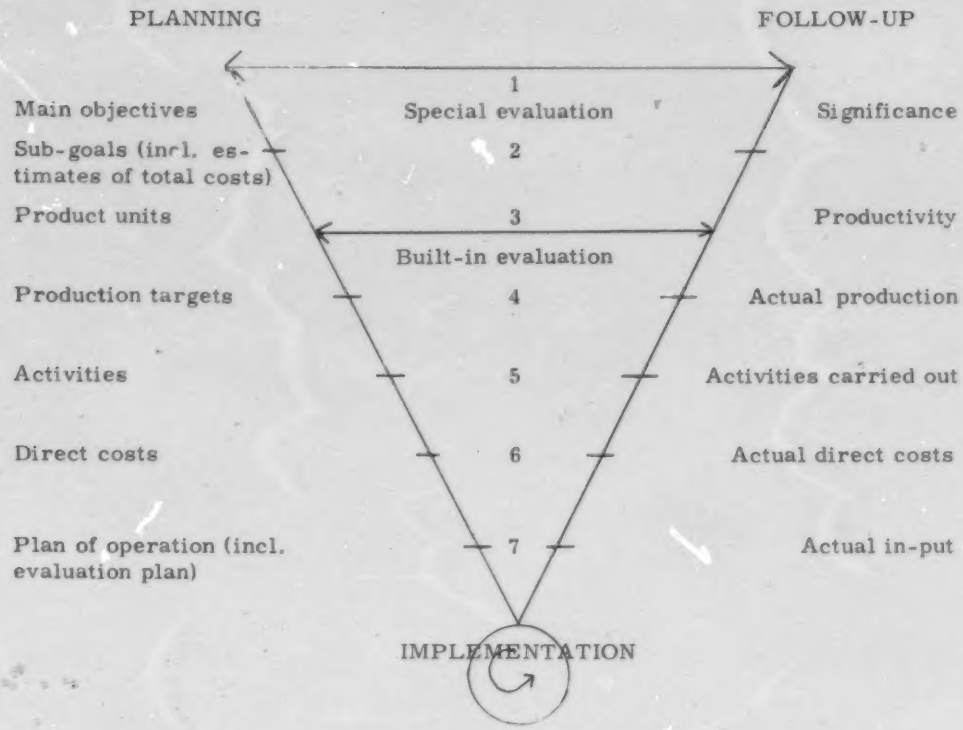
To claim - as sometimes happens - that the economies of the market are politically neutral only reveals either a narrow-minded ignorance as regards alternatives or more likely a 'technical' approach to policy-making.

Instead the evaluator must derive the benefits as well as costs from the political goals stated. In order to carry out this task it may be useful to systematize the various steps and levels of evaluation.

1. A systematic approach to evaluation

Evaluation is a continuous process from the moment when a project idea is born to the day the results and effects of a certain project cannot be related to the objectives of the project. Project evaluation must thus be a continuous process integrated in the planning, implementation and follow-up phases of the project. This systematic approach to evaluation can be illustrated in the figure on the following page.

In this figure, the left wing of the 'V' illustrates the planning phase starting with the analysis of main objectives which are then concretized into sub-goals, production targets, activities, cost estimates and implementation plans. The wheel at the bottom of the 'V' feeds planned in-put into the implementation process. The right wing of the 'V' shows the follow-up of actual results and effects. The comparisons between planned and actual results (level 7 - 3) is then defined as built-in evaluation and the comparisons between planned and actual effects (level 3 - 1) defined as special evaluation.



The V-model also enables us to distinguish between the following four basic concepts which are to constitute the cornerstones in the evaluation:

- Planned significance = $\frac{\text{Planned fulfilment of main goals}}{\text{Estimated total costs}}$
- Planned productivity = $\frac{\text{Planned production targets}}{\text{Estimated direct costs}}$
- Real productivity = $\frac{\text{Real production}}{\text{Real direct costs}}$
- Real significance = $\frac{\text{Real fulfilment of main/sub-goals}}{\text{Real total costs}}$

The terms will be used both in an ex-ante and ex-post meaning. To distinguish between the two we are going to talk about potential significance when applied to an ex-ante situation with potential goal fulfilment and potential (estimated) total costs. Real significance is then the term used for ex-post analysis as it is based on real goal fulfilment and real total costs. The same distinction is of course also made between potential productivity and real productivity.

The present trend in most economic literature, only to consider the ex-ante concepts, is misleading when not made explicit and can easily create the impression that the difference between, for example, potential and real significance is marginal and that no ex-post analysis therefore is necessary. Experiences, whenever observed and analyzed in a systematic manner, almost with no exceptions show how important it is to distinguish between data as estimated in the plan and as recorded in reality.

The 'foundation' of this evaluative system thus consists of the analysis of objectives, goa's and targets during the planning phase.

2. Analysis of public goals

The importance of well-defined goals can be described in terms of:

- Allocative power: the extent to which criteria for establishing priorities can be derived from the stated goals.
- Management power: the extent to which programme activities can be related to and guided by the stated goals.
- Evaluation power: the extent to which progress made can be expressed in terms of the stated goals.

The first step in an analysis of an educational programme is thus to define as clearly as possible the policies which are to form the base for the allocation decisions, management control and evaluation work.

Most analysts would theoretically agree to the statement that it is prerequisite for any analysis in the public sector to know what the policy-makers want to achieve - that is being familiar with their goals. But in practice few analysts - in particular those using economic research methods - start off their work by trying to find out what these goals really are.

This theoretical acceptance but practical neglect of the political policies can partly be explained by the fact that goals are already implicitly given in most economic models partly by difficulties to transform public policy statements into operational goals.

The above described evaluative approach by definition is not linked to any particular economic or social policy but based on the stated policies in a particular country for a particular sector or programme at a particular time, a goal analysis must always be carried out. In fact, it constitutes the very heart of the system.

The analysis of public goals - as seen from the evaluators point of view - can be divided into the following six major phases:

(a) Describe the problem area
(b) Identify policy outputs
(c) Specify the goal elements
(d) Structure the goal elements
(e) Analyse the linkage goals on different levels (means and ends test)
(f) Analyse conflicts between goals on the same level.

These six steps of the goal analysis, on which the following discussion will be based, can be illustrated as below:

A. Describe the problem area

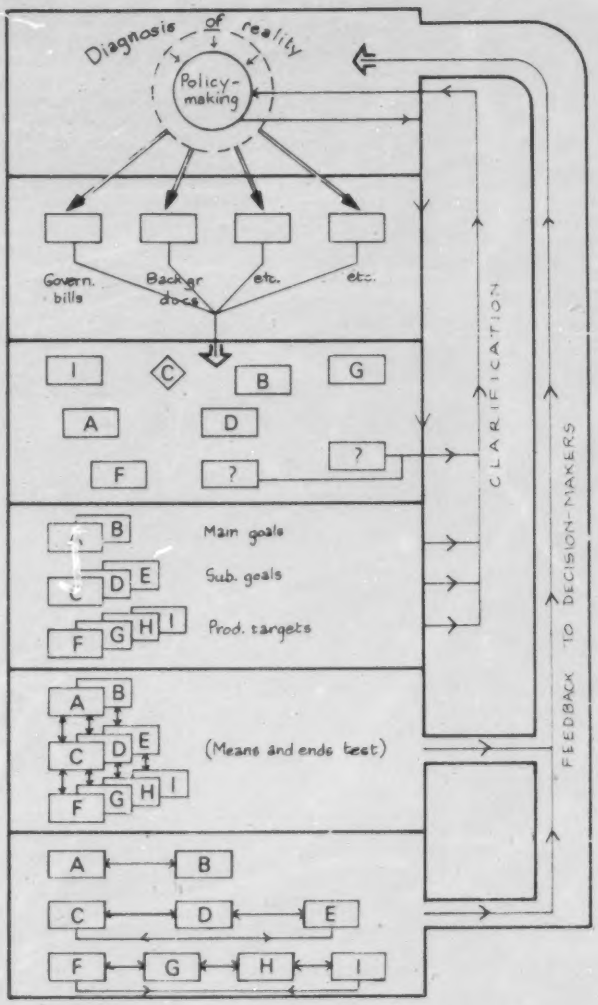
B. Identify policy outputs

C. Specify the goal elements

D. Structure the goal elements

E. Analyse the linkages between goals on different levels

F. Analyse conflicts between goals on the same level



2.1 Description of the problem area

Policies are not formulated in a vacuum. They are - or should at least be - based on an assessment of the present situation. The achievements to be aimed at can then be indicated and transformed via, e.g. a political process into policy outputs; annual and long-term plans. An evaluator of, e.g. educational programmes should not directly be involved in policy-making. His role is to utilize the policies stated in the analytical work in order to help the policy-makers to acquire a better understanding of alternatives as judged against their own policy statement. The evaluator can, however, only play this role if he has some insights as regards the process of policy-making as such and knowledge about the structure of the educational sector and content of the educational plans. (See separate paper.)

2.2 Identification of policy outputs

Familiarity with the policy-making system described above is necessary when the various policy outputs are to be identified. These outputs may be expressed in written documents or only verbally stated. Some may be explicit and clear policies, others rather vague. In many cases it will be next to impossible to find any policy guidelines at all except the fact that a decision is to be or already has been taken. But one thing is for sure: goals always exist as long as the purpose of a programme or a project is to achieve something. It is this 'something' that the evaluator must identify. As the structure of policy-making varies between countries it is impossible to give any general indications as to where to look for policy outputs in governmental bills, developing plans, committee background papers, plans of operations, legal documents, various protocols, budget presentations, etc., etc. The only advice to be given is that the evaluator take the time needed to find out what exists and what does not. One may argue that it should be the policy-makers' job to communicate their policies in such a form that the evaluator never had to search for the information needed. But as this study tries to face reality as it usually exists such a recommendation is seldom a solution to the problem to be solved.

Instead we will consider the quality and relevance of the policy outputs in order to facilitate the next step of the goal analysis - the defining of the goal elements.

The quality of the policy outputs only refers to how well they are defined which, of course, has nothing to do with the quality of the content.

The relevance of the policies must be determined with reference to the structure of the policy-making institutions. The reason of course being that in any field of public activities there exist various opinions of what ought to be the policies to be followed. If funds are to be allocated within, e.g. the educational sector, various interested groups such as the teachers, pupils, parents, officials at the ministry of education, political parties, leaders at regional associations, etc., are interested to influence the decisions to be taken. The evaluator is of course not the one to judge what

are to be considered good and bad policies - his task is to consider those policies that are formulated in accordance with the accepted policy-making process of that particular country for this particular type of programme. Neither is he to introduce his own political views into the analysis. This may seem self-evident but how many times have not analysts introduced theoretical models without recognizing the implicit policies then applied. It may sound more scientific to refer to Pareto optimality than to a vague governmental bill when analysing various expenditure patterns for education. In terms of relevance for the evaluation the simple truth is, however, that a policy formulated by the government in the country concerned (e. g. that the regional distribution of new schools should be considered) is far more relevant than the policy ideas of a prominent economist from Italy in the beginning of this century (which includes the idea that redistributional policies are not being considered).

2. 3 Specification of goal elements

The relevant policy information identified is now to be transformed into what can be called goal elements, that is to say formulated in operational terms from the programme evaluator's point of view. In the ideal case the policy-makers may present their guidelines not in lengthy and vague statements but as precise goals. Usually, however, it is not only the task of the evaluator to identify policy outputs but he must also specify the operational elements in these policy declarations.

A set of goals are usually considered operational if all the individual goals are measurable in relevant units and if the individual goals 'form a logical and unambiguous whole in such a way that they can be achieved simultaneously' 1/. The strong emphasis on quantifiable units has often stimulated analysts to consider only those goals that can be expressed in operational terms and neglect goals that cannot be expressed numerically. To avoid this, one may either stress that both operational and non-operational goals should be included or widen the concept of operationality to include all goals that can be formulated in such a way that the goal fulfilment can be described either in quantitative or qualitative terms.

We are going to apply the second definition of operationality which then will include a quantitative, qualitative, distributional as well as executional dimension.

The quantitative dimension

The basic meaning of operational being measurable it is obvious that the quantitative expressions of the goals are of central importance. The extent to which it is possible to quantify different types of goals and thus benefits are to be discussed in some detail below.

1/ Eero Pitkänen, Sweden Journal of Economics 1970, p. 207.

The qualitative dimension

This should be considered both as regards the qualitative aspects of the quantifiable units (e.g. the quantitative units 'student examined' can be qualitatively described in terms of minimum knowledge required to pass the exam) and for such aspects of the goal that cannot be quantified (e.g. description of what is meant by the goal 'a more democratic society').

What is important is that the language used when describing the qualitative dimensions is as clear as possible. Only one interpretation should be possible. The socio-economic evaluator probably has a lot to learn from pedagogical research in this respect with its taxonomies describing in a systematic manner the qualitative aspects of various educational goals. A major research task would be to replace the so-called 'neutral' check lists with similar taxonomies focusing various macro goals related to educational systems.

The following example shows a gradual specification of both quantitative and qualitative goal elements for a teacher training institute in Kenya 1/:

The first tentative definition of the purpose runs as follows:

"The goal of the teacher training project is to remove the shortage of well-qualified teachers in a short time and at a low cost by producing a number of well-qualified teachers."

This is a rather general statement without any reference to the Kenyan situation which also lacks a time dimension.

Policy outputs presented in the project documents enable the analyst to formulate the following:

"The goal of the Kenya Science Teachers College (KSTC) is to contribute to the removal of the shortage of Kenyan S1 science teachers in a short time and at a low cost by 1968 producing 44, 47 by 1969, 98 by 1970, 128 by 1971 and from 1972 onwards 144 well-qualified Kenyan S1 science teachers given a three-year course."

The qualitative goal element 'well-qualified S1 science teacher' is then specified and the definition of quantitative and qualitative goals for the KSTC project would then be as follows:

"The goal of the KSTC project is to contribute to the removal of the shortage of Kenyan S1 science teachers in a short time and at a low cost, by 1968 producing 44, 47 by 1969, 98 by 1970, 128 by 1971 and from 1972 onwards 144 well-qualified S1 science teachers given a three-year training, out of whom the academically superior will qualify for university entrance and the rest, preferably all, will serve as S1 science teachers for such a time as there is a shortage of S1 science teachers in the country, trained so that they have academically reached a standard equivalent to Higher School Certificate in their two major subjects, that they have a broad basis of scientific

1/ Presented in a study by Olga Linné: 'A sociological-pedagogical evaluation of Kenya Science Teachers College', Uppsala 1970, p. 23-27.

knowledge, that they have achieved skills in, positive attitudes to, and knowledge of progressive teaching methods, that they will be able to function as innovators of these progressive teaching methods with respect to their pupils and teacher colleagues and that they have a good knowledge of social and economic conditions in their country so that they are able to serve as well-informed opinion leaders in their own local communities."

(It should be noted that this definition is not an official explicitly stated system of quantitative and qualitative project goals but rather has been developed from interviews with the College staff and from documents available at KSTC in Nairobi).

The difference in evaluative power of the last as compared with the first specification of goal elements is obvious both as regards the quantitative and the qualitative dimensions. The relevant questions to be considered in an ex-post analysis are thus automatically given in the latter goal formulation and include for example:

'To what extent does the KSTC project fulfil the goal of an annual output of 44 by 1968, 47 by 1969, etc.?'

'To what extent and for how long will the S1 science teachers graduated from KSTC stay in the teaching profession?'

'Does the KSTC project change the students attitudes toward more progressive teaching methods?'

It may be interesting to recall at this point the difference between an evaluation - based on specifications of relevant goal elements - and traditional market-based internal rate of return evaluations based on income generated. In an ex-post evaluation it would be considered a failure if the trained teacher never became a teacher but accepted jobs in foreign private firms operating in the capital. With the latter method this may be considered a success if the private enterprises paid a higher salary than the government could offer science teachers.

The distributive dimension covers both distribution over time and distribution between various target groups. We will limit the presentation of this dimension to the distribution over time and between groups.

The distribution over time can be described by a starting point (base-line), various checkpoints during implementation and a specified time when the final goals are to be achieved.

The base-lines serve the dual purpose of informing the decision-maker about the present situation and thus improve the base for decisions as well as they enable the manager to follow the goal variables over time as from the time before the programme was implemented.

The checkpoints are particularly important for the management power of the goal. A goal stating that 1,000 teachers should be trained within a ten-year period is not operational until the yearly output of teachers trained is specified. This can easily be understood when realizing the differences in implementing the following two different output series (Alt. 1: 10 x 100; Alt. 2: 5 x 20 + 5 x 180).

The evaluative power of the time dimension of a goal is self-evident. No-one would consider it irrelevant if the 1,000 teachers were trained during a 5, 10 or 25 year period.

In spite of the obvious and absolutely crucial time dimensions base-lines and checkpoints are often missing and some educational policies are even lacking any reference to time. A goal without the time dimension can never be considered operational.

The distribution between various groups (e. g. classified in terms of income, age, sex, or geographical location) is equally important but in spite of this often neglected in most public goal formulations. Just as goals always exist - at least in an ex-post sense - so do target groups. When known, such distributional goals are usually either very vaguely formulated (equality is important) or belong to the implicit goals that fall into contradictory pieces if expressed explicitly. Another reason for the lack of distributional descriptions between groups is that the present situation is not known and thus the light of explicity will only reveal a lack of knowledge. Finally an often heard argument for not focusing on the distribution between groups when appraising public programmes is that taxes and other 'distributional' policies take care of these aspects.

Any practical knowledge about reality will however indicate that the distributional effects of certain public investments neither can (due to its permanent character) - nor will (due to lack of political power) be directly linked with other redistributional efforts.

How can, for example, a farmer in the countryside be compensated for a government policy not to consider the distributional effects of such public services as education or health? Through a general redistributional policy of progressive taxation? Surely not. Consequently the specific target groups for a public investment must always be identified in a goal analysis.

The executional dimension

The concept 'operational goal' implies, as described above, that the goal can be used as an allocative, management and evaluative tool. The executional dimension of the goal describes the extent to which the goal in reality will be related to the allocative decisions to be taken, the management process and the evaluation work to be carried out.

Many political goals are expressions of compromises and may be the most practical way to avoid political conflicts. The goals then formulated may have no 'steering power' as regards the development on lower levels.

In these cases the technique of 'revealed preferences' can be useful in checking to what extent the decisions actually taken are in line with the policy statements made, that is to make a crude but clear distinction between what can be considered real and imaginary goals respectively.

2.3.1 Benefit measures actually applied when evaluating educational programmes

The identification of the benefits for a certain project is the same as the description of the content of its operationally defined objectives and goals. In spite of this it may be interesting to indicate some benefit measures as they actually have been used in various analyses in order to exemplify the possibilities and limitations to express progress data in quantitative and qualitative terms. These measures are, of course, only to be regarded as examples of potential benefits.

(i) The principal measure of productivity is the increased earnings due to higher education as isolated - as far as possible - from income effects determined by native ability, family background, social class origin, work experiences, etc.
Even if we could isolate these factors and all the relevant statistics were available, it can be questioned whether - from society's point of view - income levels and productivity levels were strongly correlated. From the individual's point of view the earning as such is of course the criterion of better opportunities and possible rise in level of living regardless of the productivity effect of the job performed.
When calculating the productivity/income effects of education the actual rate of employment must be estimated (based on manpower plans) and not school enrolment figures; drop-out rates, un- and underemployment must be included in the analysis.

(ii) Consumption benefits from education (the pleasure during and after education) is hard to measure and therefore often excluded.

(iii) Social educational benefits include:
- greater flexibility and thus adaptability in a changing society due to education (greater security);
- higher status and, perhaps, more 'wanted' type of jobs;
- lower birthrates are often associated with education as well as improved health (due to better hygiene).

(iv) Indirect benefits
- other persons earn more due to the education of some, e.g. employers, subordinates, families (mothers can go out to work when the children are in school);
- less social cost for the public in the field of police protection, social welfare, etc. (mainly relevant in urban areas in industrialized societies).

(v) Institution building effects
- development of an institutional structure adopting and forwarding attitudinal changes with positive effects on the development process;
- the maturity and quality of the teaching institutions can be measured (e.g. by assessing the quality of the inputs).

(vi) Political benefits
- the importance of a literate electorate;
- forging a national culture and in many cases a common language;
- modernized outlook both as regards those educated and their relatives (e.g. parents) and friends.

(vii) Distributional benefits

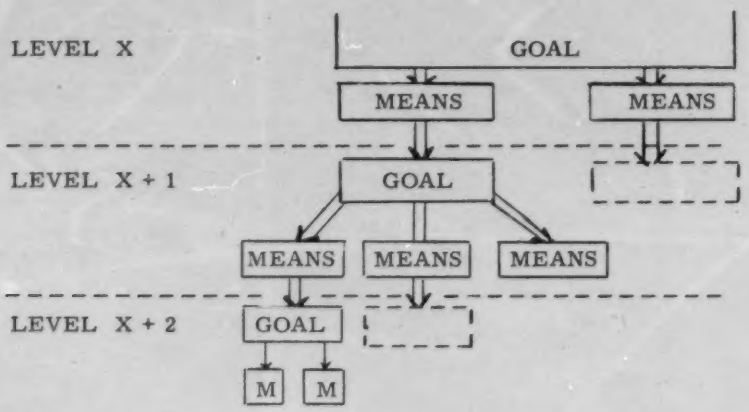
Education can bring about equality in opportunities and the distributional benefits of providing education to those under the poverty line are an extremely important policy measure to decrease the gap between poor and rich. It should, however, be recognized that the place of residence after completed school rather than the location of the school is most important. A theoretical elementary education in a rural setting may just increase the unwanted urbanization and thus unemployment in the cities and be of no or negative effect for the communities where the school was located.

2.4 Structuring the goal elements

The goal hierarchy:

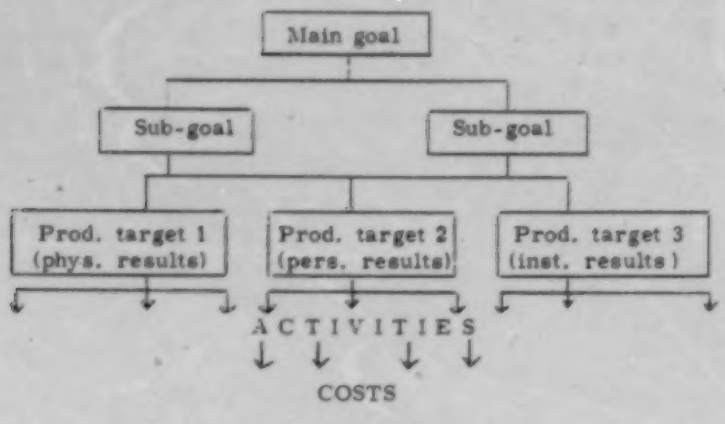
We have now reached the stage in the goal analysis where the relevant policies have been transformed into goal elements which are as operational as possible. The next step is to relate these goal elements to various policy levels, that is to say identify how ends and means are related to each other. This can be done by constructing a goal hierarchy.

A goal hierarchy - or a means and ends chain as it is also called - can have any number of levels and is characterized by the fact that ends on one level become means on another. (See the figure below.)



For practical purposes we will use a four level model. These four levels are usually sufficient when analyzing a public programme and can be referred to as main goals, sub-goals, production targets and activities.

The goal hierarchy can then be presented as follows:



In constructing such a goal hierarchy both the 'top-down' and 'bottom-up' approach must be used depending on the extent to which the alternatives are a priori given. Again it is worth underlining the fact that the evaluator has to try to structure various goal elements into a goal hierarchy should not reduce - but stimulate - the policy-makers to do the same before the policy statements are formulated. This would be a most effective way of directly improving the consistency and clarity of almost all policy statements and stop the present presentation of isolated policy elements on various levels.

Assume for example that the policy-makers formulating the main goal for foreign aid in an expenditure figure (e. g. GNP) had tried to formulate some production targets. When realizing that spending - regardless of use - hardly constituted any base for allocation decisions this main goal had probably been expressed as a resource base related to some main more meaningful goals if one did not accept the fact that, for example, 10,000 monetary units (MU) spent on a Rolls Royce automatically are ten times better than 1,000 MU spent on educational material.

This example may seem to be out of touch with reality 'as no politicians act without considering the use of the money'. But when realizing that most public policies are expressed not in benefit but expenditure terms (X MU to the educational sector instead of stating the main benefits to be achieved through an expenditure of X MU) the above example is neither irrelevant nor an undue over-simplification.

The goal hierarchy also enables us to apply the central concepts of significance and productivity described above. Planned and real significance is then related to main and sub-goals while the numerators for planned and real productivity are to be found on the production (output) level.

2.5 Analysis of linkages between goals on different levels

The logic of the goal hierarchy, which implies that the various goal elements are 'sorted in' on the appropriate levels, must be integrated with an analysis as regards the linkages between the different levels. This is usually called an ends and means or a means and ends test depending on whether the 'top-down' or 'bottom-up' approach is used.

One way to understand and describe these linkages is to look upon the various goal levels as separate subsystems and then try to see how these systems are linked to each other. Assume that we are to carry out an ex-post means and ends test. The starting point would be the input system specifying what inputs (in terms of e.g. money, manpower, goods and services) actually had been provided. The linkage between the input system and the project system is revealed through questions such as: Was the money used in accordance to the plans? Could the manpower resources be utilized? To what extent were the goods and services provided successfully absorbed by the project system? What inputs were missing (lack of linkages)? The project system then transforms these inputs via various activities to outputs. The linkages between activities and certain production results is of course of extreme importance and is usually a problem to be studied by a subject matter specialist.

The relationships between the project system and the subsector to which the project belongs is of crucial importance.

To consider only production and productivity has in many cases simply implied that the wrong outputs have been produced more effectively (improved teacher training for the wrong types of teachers, increased production of products without a market, etc.). In other instances isolated productivity analyses have stimulated the decision-makers to try to maximate a certain type of production without relating it to other related project systems and higher ends. A positive effect of stressing the relationships between means and ends is also that the subject matter specialists have to relate their knowledge and recommendations to a wider and more dynamic context instead of limiting their views, e.g. the project system. If this type of communication is improved the risk of the 'white elephant' projects is reduced and every subject matter specialist has to come out of his professional jargon in order to relate his job to the others' in order to achieve a common end.

2.6 Analysis of conflicts between goals on the same level

"The government of any society may be viewed as composed of many competing individuals with conflicting goals" 1/. The last part of the goal analysis will focus on the understanding and formulation of these conflicting goals. The whole process of resource allocation can of course be considered in

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1/ J. Alessi, 'Implications of Property Rights for Government Investment Choices', The American Economic Review, March, 1969.

terms of various goal conflicts as more resources to one programme result in less for another. The more limited scope of this analysis is to discuss some possibilities and constraints in order to determine relevant trade-offs between e. g. stated production targets or sub-goals in order to create a base for the further analysis of the resource allocation problem. This is to be considered an alternative to the present trend to neglect existing goal conflicts at the policy level and only consider one goal at a time.

In terms of political slogans the goals for education, health and improved communications may then be formulated separately in very general terms. Expressions such as integrated, unified, or balanced approaches may however give the public an impression of a consistent whole. From the programme analysts' point of view such goals resemble more of a wishing list than a base for any allocation decision.

What is for example the meaning of 'balanced regional development in the field of educational facilities'. Is it to be interpreted as if the differences between rich and poor regions in a country should be reduced (balance = equality) or remain unchanged on a higher level (balanced = present distributional pattern)?

A simple systems approach can also, when analyzing relationships between goals on the same level, be preferred to a static expression of a single goal as it helps the policy-maker and evaluator to understand the dynamics of the various goals.

A major task for the evaluator is to identify inconsistencies within the goal structure and by making them explicit hopefully improve the technical quality of the goal either by stimulating policy-makers to reveal their preferences or by structuring the available goal information in a systematic way.

Not until these steps in the goal analysis are carried out can the identification, enumeration and valuation of relevant benefit expressions of a particular educational programme be focused and an ex-post evaluation - from society's point of view - be useful for policy-makers and managers.

Document No. 4

THE ROLE OF SECTOR STRATEGY AND SECTOR ANALYSIS IN THE PLANNING OF SWEDISH INTERNATIONAL DEVELOPMENT ASSISTANCE

by L.O. Edström

BACKGROUND

The guiding principle of Swedish international development assistance is the recognition that planning, implementation, and evaluation of development programmes and projects is primarily the concern and the responsibility of the developing country itself. Swedish assistance is country oriented inasmuch as it proceeds from the needs, objectives and priorities of the recipient country.

1. For Sweden's principal development partners, SIDA's long-term planning of bilateral Swedish development co-operation takes the form of special assistance programmes, so-called country programmes. This is the central planning document. It emanates from the recipient country's own plans, priorities and wishes, and indicates as well the volume and content of the Swedish development assistance to the country. The country programme consists of one descriptive part and one containing recommendations, the latter forming the actual development assistance programme.

2. The sector strategy and sector analysis are preparatory instruments which provide the basis for discussions on the content and form of the development assistance programme.

3. The sector strategy, the sector analysis and the sector plan are the three main concepts in any one sector.

4. The sector plan is synonymous with the all-inclusive plans for the total sector as expressed in the country's long-term plans, for example its five-year plan. It should include envisaged development in all the sub-sectors within a particular sector. Swedish development assistance is in this context merely marginal as Sweden can give support only to certain projects or certain activities within the framework of the sector plan. The needs are often immense and far exceeding the resources available. For this reason the sector strategy and the sector analysis are essential.

5. The sector strategy is SIDA's effort to clarify its own concept of the sector. It is vis-à-vis the developing partners in no way normative. It must not be used or interpreted as a directive for any one particular country as to what it ought to undertake within the sector, nor as the sole criteria against which the scope and nature of the Swedish development assistance should be decided.

Priorities and wishes expressed by the recipient country are focal points in the sector as elsewhere.

The sector strategy is exclusively a document of the donor country. In the first instance, it indicates how the donor country would like to regard the sector, the categories to be analysed within the sector, the type of information needed and reasons for the choice. Secondly, a sector strategy is necessary in those cases where the developing partner submits various proposals which it accords the same degree of priority or urgency, but where SIDA can only contribute to part of what is requested because of the financial limit constituted by the target figure set for that particular country. When a situation arises where selection of project/projects must be made the priorities established in the sector strategy should apply. Thirdly, the developing country may often request advice or assistance relating to the planning for the sector. In such a situation it is essential to be clear as to one's own position. Any advice or help should nevertheless be given in the context of the general premises of the country's own sector plan.

6. The sector analysis is a document where the sector plan and strategy are brought together. It is the central planning instrument for the sector. A strategy is only the prerequisite for the analysis.

Analyses of the educational sector are conducted in those countries where development assistance in the field of education is requested. The analysis should be made against the background of the sector strategy and contain one descriptive part and one in which comprehensive and detailed justifications are given for Swedish contributions to the country's development efforts. The sector analysis is conducted by the SIDA division concerned and serves as a working document which, inter alia, is submitted to the area division forming a basis for the latter's work of programming development assistance to the country in question.

7. The working out of a sector analysis consists of five main phases:

(a) A draft description of the sector, based on available documents such as development plans etc.

(b) An outline for an analysis of the development and problems of the sector in the context of the description under (a).

(c) A listing of questions that are unclear in connection with (a) and (b).

(d) An investigation or study of facilities in the country, and visits to the authorities concerned in order to identify needs.

(e) Finalization of the analysis.

The questions raised under (c) should be submitted to the authorities of the country in question prior to the field visit.

8. The analysis can be conducted by the Development Assistance Office, SIDA Headquarters (Education division) by consultants, or a combination of the alternatives mentioned, depending on what is most suitable in each case.

9. The descriptive part should, among other things, include:

(a) The importance of the sector in relation to the country's entire planning.

(b) The expressed objectives for the sector.

(c) The implicit objectives for the sector (as indicated in the plans).

(d) An account of possible conflicting objectives.

(e) The structure of the sector i. e. the educational system, length of education, age, levels, etc.

(f) The size of the sector e. g. numbers of students attending a particular type of education.

(g) The administrative structure of the sector (descriptive).

(h) The extent to which the sector is influenced by 'external' factors in society e. g. economy, politics, cultural conditions, social structure, language problems, etc. This is an important part of the work because solutions to the educational problems are to a large extent to be found beyond the confines of the educational system and structure.

(i) Target groups and regions.

(j) Follow-up investments or supporting measures e. g. in relation to costs which the sector plan might imply in 10-20 years.

(k) Financing and costs of the sector.

(l) The safeguarding of the employment aspects in the sector plan.

(m) Development assistance from abroad and its effects for the sector.

(n) The existence of evaluation within the sector and, if so, the methods used.

10. The analysis should, among other things, deal with:

(a) Shortcomings - explicit and implicit - within the sector, its planning and administration.

(b) Degree of realism in the planning.

(c) Degree of inter-relatedness/integration within the sector. Do the sub-sectors and the projects within the sub-sectors together form a well-coordinated whole?

(d) The extent to which the objectives are achieved within the sector.

(e) Whether plans for the sector are realistic or merely formal i. e. do the real priorities concerning finance, personnel and measures correspond to the priorities expressed in the sector plan?

11. Recommendations for Swedish development assistance are made on the basis of the country's own wishes. Preferably, each sub-sector for which assistance is requested should be regarded as a single unit, and proposals submitted should indicate in terms of percentage how much of the Swedish development assistance intended for the entire sector should be allocated to each sub-sector (primary school, adult education, etc.).

Within each sub-sector an account should be given of the more important projects for which Swedish assistance might be considered. The discussions on this assistance, however, should be closely related to the sub-sector; the mentioning of projects serves as an example only.

The country's wishes concerning the total resources needed for a period of 4-5 years for the projects within the sub-sector should be indicated. The resources can be in the form of credits and grants comprising funds, goods, consultants and staff.

Presented in this form the recommendations, together with other parts of the analysis can form the basis for an agreement for the whole sector, n.b. within the frame of Swedish development assistance to the whole country. Thus, an agreement with the country could encompass the total assistance to the sector, possibly with specifications for the sub-sectors whenever appropriate. The question of allocation between the different projects and the type of agreed upon resources to be utilized would then be settled directly between the competent authorities of the recipient country and SIDA. A sector analysis would thus facilitate the possibility of the donor country to move away from predominantly institution- or project-oriented assistance to a more flexible form which could better serve whole sub-sectors and perhaps even an entire sector.

The sector analysis should be submitted in English/French to the recipient country for approval.

Document No. 5

AN APPROACH TO EXTERNAL EVALUATION OF TRAINING

by I. Ahman

1. Evaluation systems - a general outline

Wickström 1/ (1966) gives the following general outline for the relationship between different types of evaluations:

> "The purpose of a project evaluation can be said to investigate whether a system has moved towards the desired goals, and if this is not so undertake corrective action. The time-scope for evaluation can be either pre-project (appraisal) where it usually is a question of choosing between alternate projects or sizes and compositions of one project; during project, where it is desired to change activities (or goals) continually for better goal attainment; or past-project (ex-post), which is a final calculation of the degree of success of a project. A past-project evaluation can, of course, be considered pre-project for new undertakings depending on the lessons learnt.
>
> There are four requisites for a project evaluation: the system has to be known, the goals have to be stated explicitly, the goal attainment has to be measured and finally the goal attainment has to be attributed to the project and its different parts. The more ambitious approach, and one which is necessary for gradual adjustments of the project, is to assess the relationship between different parts of the projects and goal attainment, i. e. to assess the effects of the project activities. In integrated projects this can be difficult and one has to be content with a 'black-box' approach, where the inputs are measured and the outputs, but nothing is known about the way the inputs produced the outputs.
>
> To make the project workable, the main goals have to be decomposed with an increasing amount of specificity and detail. The activities will then be designed and implemented. In an after-measurement the goals' attainment will be measured which starts with attainment of detailed, specific goals for each activity and finally builds up to the goals for the whole project, as is shown in the figure 1 below."

1/ Bo Wickström, 'Viewpoints on the evaluation of the CADU project (Ethiopia)'.

Figure 1. The goal - activities - goal-attainment sequence

Main goals → Sub-goals → Production targets → Activities programs → Target attainment → Subgoal attainment → Main goal attainment

Hence after what could be considered as the planning and implementation phase in the sequence the remaining steps are introduced in the reverse order i. e. starting at the lower goal level and ending up in the higher.

Three fundamental concepts in connection with life-cycle of a project now remain clear; planning - implementation - evaluation.

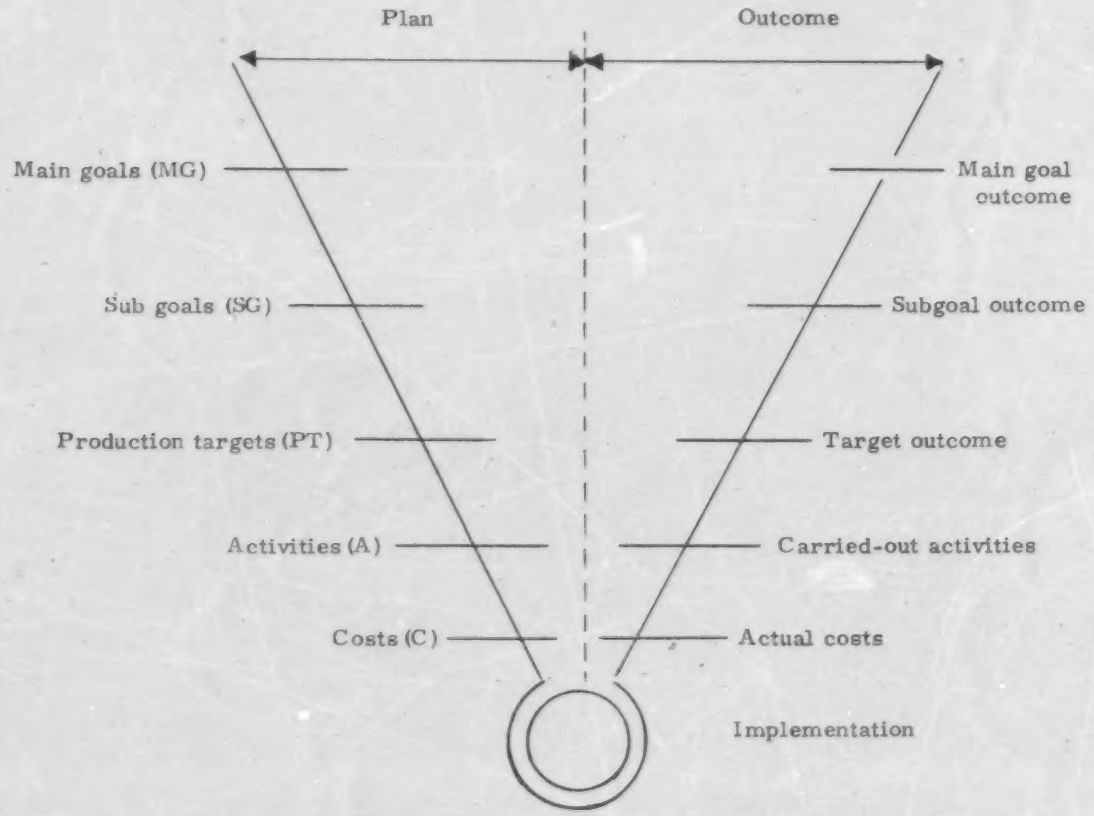
Figure 2. Planning - implementation - evaluation

Plan | Implementation | Evaluation

Main goals → Sub-goals → Production targets → Activities programs → Target attainment → Subgoal attainment → Main goal attainment

Now, if the sequence is transformed into a V-shaped figure like the one in Figure 3. The interconnection between the different phases will be made more clear.

Figure 3. Interconnection between the different phases



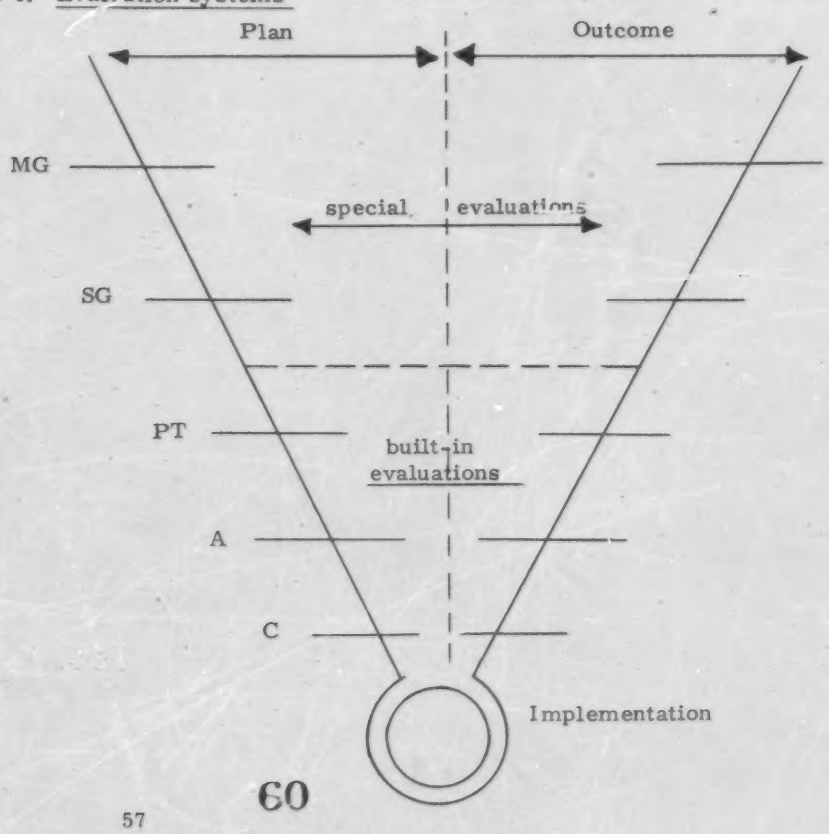
The evaluation consists in comparing the plan with the outcome. Or to put it in another way you will always have an input in the system through your activities and you will always get an output or a result. But the output is not automatically to be referred to as the goals of your plan. First an evaluation (i. e. comparing outcome with plan) has to be carried out. Only if the comparison equalizes the output with your goals you will have a complete goal attainment.

More efficient evaluation systems consist of two complementary parts - a built-in evaluation system - and a special evaluation system.

The built-in evaluation system is a kind of management tool which will enable the decision maker to undertake immediate corrections in the course of the project. This system mainly leans on reporting as the device for data collection. However, the difficulty rests in the question, what is of value to report and what is not.

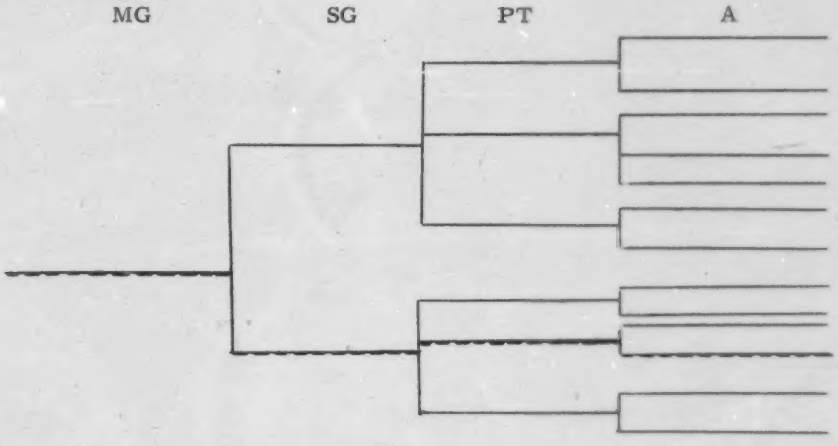
The special evaluation system consists of more thorough check-ups often in the form of field investigations like sample surveys, observational studies or analysis of secondary data. The special evaluation is not equal to the traditional 'ex-post' evaluation method. The special evaluation always is a tool to direct (control) the course of the project towards established goals, whereas most traditional ex-post evaluations summon up the 'will' of the project so to say with eventual benefit to new projects of equal shape, but are too late to change the evaluated project.

Figure 4. Evaluation systems



The interesting thing about the goal sequence is the inter-relationship between the different goals and targets. The plan (as referred to above in the V-shaped diagram) can be systematized in the shape of a goal hierarchy where the different goals and targets form the 'building stones'. Ideally the hierarchy could have a structure similar to the one presented in figure 5.

Figure 5. Goal hierarchy



A higher order goal will be derived through the attainment of lower order goals. There will be a logical sequence starting at activities level (A) and ending up at the main-goal level (MG). Goals will be interrelated but there will be no goal conflict. There will also exist a practical way of testing the different 'goals-means' chains in the hierarchy. (One such chain is specially indicated in figure 5).

Simplified example of a 'goals-means' chain applied on a project providing vocational training:

A: to train lathing with a group of 50 trainees selected from .....

Why? Why do we train etc...

In order to:

PT: In May 1973 at least 40 skilled workers will leave the vocational training institute with such and such minimum level of knowledge of lathing.

Why? Why 40? Why that level?

In order to:

SG: Contribute to supply the need of skilled workers. It is estimated that an over-all need will be of the magnitude of ..., out of which 40 will be educated at the institute. It is estimated that the minimal requirement in knowledge will be... etc.

Why? Why is this need quantitatively and qualitatively at that specific level?

In order to:

MG: Contribute to the maintenance of existing industries. It is estimated that in comparison to other alternative training opportunities, the present level of technical know-how in the industries, difficulties of importing machinery etc.... the estimated yearly number of graduated skilled workers will accomplish the optimal efficient alternative towards maintenance of existing industries.

The facts presented in the example could be debated but that is not the point. The idea is simply to show the logical interrelationship between the different goal levels and a way of establishing the interrelationship.

Referring to evaluation it was mentioned that the goal-sequence was inverted at the end.

The reason for inverting the hierarchy in the evaluation part of the sequence is connected with the fact that attainment of lower order goals (targets) does not automatically imply the attainment of the next higher order goal (or any higher goal) in the hierarchy. Reversely if the higher order goal is attained the next lower order goal (or any lower order goal) is likely to be attained.

The following simplified example extracted from a population project illustrates the point:

main goal - less poverty in the average family.

sub goal - less children per family.

production target - access to preventives for group A.

('A' equal to low income people in certain area; estimated population 'X' individuals).

activities - production and distribution of preventives.

Evaluating the project the planned activities will be compared to the activities carried out. If accomplished activities equal planned activities this does not per se guarantee that the production target has been attained. The distribution (even if it was properly carried out) could perfectly well result in group B having access to the preventives and not group A. B could for example be a middle-income group which better can afford using the preventives and also be better motivated to do so because of their higher educational standard.

Next step in the sequence: if the production target has been attained this fact does not automatically lead to sub goal attainment. Access to preventives does not automatically mean that they are used in all cultures.

Next step in the sequence: if the sub goal has been attained this fact does not automatically lead to main goal attainment; less poverty.

With some exaggeration the conclusion will be; only when the highest goal in the hierarchy has been attained to we will really know if the whole exercise has been worthwhile.

Or put it another way. If the conclusion is that the population programme leads to increased poverty in the average family it should not be carried out, even if, for example, the result has been fewer children.

In reality the causality is difficult to isolate and the situation is a more complex one. But nevertheless the main point remains to some extent and must be considered.

2. Evaluation systems - specific outlines for evaluation of education.

Primarily this paper will deal with evaluation of training. However most of the ideas presented will also be applicable to education. The distinction made between education and training should be emphasized in this connection. Crawford 1/ (1961) defines training as determined by a particular system in which the pupils carry out certain defined tasks.

The end product of training will be a particular on-the-job-behaviour. In the case of education the student is prepared to function in different types of systems. Personal development and increased knowledge are often goals in connection with education while development of motor skills and attitude formation are common objectives for training.

In order to facilitate the demonstration of a system for external evaluation the case of application to training will be used. From the point of view of the evaluation system it follows that the concept of training could be extended to include all forms of university education and all forms of primary and secondary education which are connected with specific aim for the society. The main exception being different types of education which form the basis for other types of education.

2.1 The questions to be answered by the evaluation

The usefulness of an evaluation system could be demonstrated by a sample of questions which could be answered by an appropriate utilization of built-in evaluations and special evaluations.

Example from an institute of secondary technical education:

(a) Goals

MG: Contribute to increase the maintenance rate of operating machinery in the following industries ...

SG : To supply the estimated need of technicians and skilled workers in the field of ...

PT: Quantitative educational targets
1972 x persons trained
1973 y persons trained
1974 z persons trained

Qualitative educational targets

Student performance.

Standards for the student's performance during each period of examination are set. The natural examination period follows the end of each academic year and the end of the complete training. Standards are set covering different dimensions of education which should be connected to the established goals. Some possible dimensions may be categorized as:

1/ Crawford, M.P. "Concepts of Training" in Gagné, R.M. (Ed): Psychological Principles in System Development N.Y. 1962.

- theoretical knowledge in connection with profession;
- practical knowledge in connection with profession;
- innovative thinking (attitudes, motivation, values);
- production-oriented thinking (attitudes, motivation, values);
- thinking oriented towards social relations in the group dynamic situation at the industrial working place (attitudes, motivation, values) etc.

Teacher Performance

The pedagogical emphasis should be on:

- modern teaching techniques using; group work and different audio-visual means to increase the motivation among the students.
- practical performance rather than theoretical knowledge.
- thinking in productive terms.
- thinking in terms of coming social relations in the group working situation on the place of work.

A:
- to teach;
- to train teachers;
- to furnish the schools with adequate equipment;
- to construct the schools;
- to construct the school furniture and design the school interiors (laboratories etc.).

C:
- costs.

(b) Evaluation

The evaluation should make it possible to get the answers to the following questions:

On the Activities and Production Target Level:

- Are there any delays in the building program? What are the reasons? How can the difficulty be solved? Have the targets for 'Furniture' and 'Other Physical Facilities' been attained? Equipment?
- What is the actual student enrolment? How does it compare to the plan? What are the reasons for deviations? How is the teacher training operating in comparison to the plan?
- What is the student drop-out rate? Why do students drop-out? What will happen with the drop-outs (negative effects of education)? How can drop-out figures be decreased?
- How is the training program going? What has actual been taught? What aspects of education has been stressed? What effects have this had on the students?
- What does the students attitudes towards the education look like? What are the students motivation for studying and to the coming profession? Have any signs of development of elitist attitudes among the students been seen? Undoubtly the students will be a privileged group. Will they carry with them this outlook to the working places?

- When on the job, how relevant was the education for the tasks carried out? Has the practical training aspect had any effect? Even if trained in productive thinking do the students still think productive on the job? If he thinks productive does he also act productive? In what way? Are the students innovative on the job? How do the students affect workers and other technicians on the job? What are the social relations? How are the students looked upon? How are the workers and other technicians looked upon by the students? Do the students have any saying? Are they accepted as leaders? How are the students being used by the employers? Are they underutilized, overutilized or falsely utilized? What in the training, in the students opinion, was the most suitable subject?
- Are modern educational techniques and methods being introduced? Does the student accept the methods? What complications have followed the introduction of the modern methods?
- How is the administration (including teaching - administration) of the institute and schools working? Are there any changes in comparison to the set administrative structures? Are there any particular administrative problems which have to be solved immediately or in the future?
- How is the teacher training developing? What refresher courses have been arranged?

The evaluation design

An elaborated built-in evaluation system would take care of the answers to most of the questions in this connection. The danger with a built-in evaluation system rests in the possibility of overreporting.

In order to complement the built-in evaluation some special evaluations should be carried out. Particularly in connection with the utility of the education in the working situation some sample surveys or participant observation-type studies would be suitable.

Special evaluations could also be used to follow the students during the training. In this connection an aptitude testing device will play an important role.

On the Sub-Goals level

The evaluation carried out should give answers to the following questions:

- How many of the graduated students were employed immediately after the graduation, how many 6 months after and how many 1 year after?
- In what kind of work were the students employed after graduation? To what extent did the work correspond to their education? Had the work carried out needed a different education? What was the reason in this case that the student was 'wrongly' employed? Is there a decreasing need for professionals in the field the students were trained in and an increasing need in a slightly different, or different occupation? Are there not sufficient educational possibilities to provide trained people for this different field or are there any other factors influencing the choice of job in a wrong direction?
- What was initially the expressed motivation for studying at the institute? What was finally the expressed motivation for choosing the actual job? What future employment perspective is predominant within the group of

graduates and newcomers on jobs? For example is the technical education given at the institute seen as a short-cut to an academic career or for top positions in administration and industry or is it seen as an opportunity to be trained for productive technical work in the industries?

- Are demand figures for technicians and skilled workers educated in the field of .... (the fields of training) .... increasing or decreasing? In which field is the demand increasing (decreasing) most? What major factors count for increased (decreased) demand?

Evaluation design

- The students could be followed-up at intervals after graduation by sample surveys (special evaluations).
- Official demand figures from different industries could be analysed (built-in evaluation and/or special evaluations).

On the Main-Goal level

The following questions should be answered by the evaluation:

- Has there been any change in the maintenance of production machinery and the equipment used? Have changes related to the availability of spare parts occurred? Are machines operating at a higher average capacity? Is this a result of diminishing time lost for repairs? Is repair working more efficient or do the operators know how to handle the machines and the equipment more rational? Are breakdowns in the production because of incorrect operations or failing control systems (gadgets) decreasing? Is this a result of better instructions given by skilled workers and technicians? In what way have they influenced workers and other technicians?

Evaluation design

- The individual in the working situation should be followed up. Persons responsible for technical production and production economics should be interviewed. Production results per production unit should be analysed (special evaluation).

3. Outlines for an evaluation system for education (training)

Often activities or even projects will be carried out with little or no connection to the objectives that integrate the activities (project) to the needs of the society. This has particularly been the case of training which often has been looked upon as a separate specialization. It is therefore an urgent matter to perceive the function of training correctly and define the objectives of education as compared to the objectives of other activities which together form the complete system.

We will now turn to the original hierarchy of goals (as presented above) and apply the model to the specific field of education (training). Relatively few components will be included in the model. Hence, it does no more than provide a schematic reflection of the realities of training.

3.1 Main-Goals - analysis of overall objectives

Starting from the main goals in the society the role education can play as an alternative to attain

these goals has to be investigated. The formulation of the main goals for education will further require an analysis of existing manpower resources (knowledge, teachers etc.) the cost of attaining different objectives and the material (school buildings, inventories etc.) available.

3.2 Sub-Goals

(a) Analysis of quantitative needs

On the sub-goal level the number of people to be educated or trained for different purposes has to be estimated. The starting point may be the capacity to absorb different professionally trained categories. What people have to be trained and the deadlines for the educational effort should also be formulated in the goals. What school premises will be available? What possibilities for on-the-job training will exist?

(b) Analysis of qualitative needs

The knowledge and skills required to carry out the job should be formulated in the form of objectives for training. A careful examination on the behaviour on the job will result in a Job-description which should summarize what is needed to carry out the job efficiently and successfully. So far job-descriptions have not shown the required precision required for a guiding instrument for the objectives of training.

In analysing the duties to be carried out on the job a number of questions should be put regarding:

- How is the task carried out?
- What instruments are used?
- Why is it carried out?
- How well does he carry it out?
- What is the minimum acceptable standard for carrying out the task?

3.3 Production Targets

(a) Quantitative training objectives are formulated in accordance with the need for educated (trained) people presented on the sub-goal level. The planned number of graduates per educational institution and per year should be stated in the production target. In order to achieve this output the number of intakes at different levels per institution and year should be described.

(b) Qualitative training objectives entails a description of the desired performances at the end of the training. In order to make the objectives communicable the terms of competence the trainee must fulfill at the end of the courses must be described in an operational way.

Mager 1/ (1961) sets out a number of fundamental requirements which should be fulfilled to make the objectives clear.

1/ Mager, R.F. "Preparing Objectives for Programmed Instruction". Fearon Publishers, San Francisco 1961.

(i) Identification of the final behaviour which the trainee is expected to produce.

(ii) Description of the acceptable standards of performance.

(iii) Description of the specific conditions which must be prevailing when measuring the performance.

3.4 Activities

The following main types of activities should be described:

(a) The course content.

(b) Different media to be used.

(c) Specification of entering performance of trainees.

The course content

The course content has to be specified on the basis of the entering trainees knowledge.

Different media to be used

Some questions must be answered in relation to this point like the administration of media and the cost of different types of media.

Entering performance

In order to show the effect on training by using a performance differential the initial and final level of knowledge and skill must be demonstrated. The better the entering knowledge is known the more efficient the training can be carried out.

Annex I

THE EVALUATION OF THE KENYA SCIENCE TEACHERS COLLEGE

1. Introduction

The Kenya Science Teachers College (hereinafter called the KSTC) is a project supported by the Swedish Government for the training of science teachers for secondary schools in Kenya. The co-operation between the governments of Kenya and Sweden is based on a bilateral agreement covering the period 1965-1976. The main responsibility for the administration and completion of the project has been delegated to the University of Uppsala by the Swedish International Development Authority (SIDA).

The KSTC offers a study programme including academic courses in Mathematics, Physics, Chemistry, Biology, Geography and Industrial Arts, as well as methods of teaching and teaching practise for students who have passed the East African Certificate of Education or equivalent at the 0-level. After three years of study at the KSTC the students are qualified to teach in Forms I - IV in their two main subjects and in Forms I - II in a subsidiary subject. At its full capacity in 1972, the College will have a total enrolment of about 450 students and produce about 150 secondary-school teachers a year.

At the request of the University of Uppsala and the SIDA, Dr. Olga Linné commenced an evaluation study of the KSTC in February 1969.

The aim of the evaluation study is to make an assessment of the quantitative and qualitative results of the activities going on at the KSTC and on the basis of these results to develop the present training system further.

In the planning and completion of this study, Dr. Linné has worked in close co-operation with the staff of the KSTC, representatives of the University of Nairobi, especially its Institute for Development Studies, and representatives of the University of Uppsala.

2. Project goals

A detailed definition of quantitative and qualitative project goals must for obvious reasons form the basis for any evaluation study. The determination of the goals for the KSTC project has in the study been based upon facts given in interviews with the staff of the College and upon available documents.

The goal and production targets of the KSTC project is to contribute to the removal of the shortage of Kenyan S1 science teachers in a short time and at a low cost, by 1968 producing 44; by 1969, 47; by 1970, 98; by 1971, 128; and from 1972 onwards 144 well-qualified S1 science teachers given a three-year training, out of whom the academically superior will qualify for university entrance and the rest, preferably all, will serve as S1 science teachers for such a time as there is a shortage of S1 science teachers in the country, trained so that they have academically reached a standard equivalent to Higher School Certificate in their two major subjects, that they have a broad basis of scientific knowledge, that they have achieved skills in, positive attitudes to, and knowledge of progressive teaching methods, that they will be able to function as innovators of these progressive teaching methods with respect to their pupils and teacher colleagues and that they have a good knowledge of social and economic conditions in their country so that they are able to serve as well-informed opinion leaders in their own local communities.

It should be noted that this definition is not an official explicitly stated system of quantitative and qualitative project goals but rather has been developed from interviews with the College staff and from documents available at KSTC in Nairobi.

3. Objectives for Evaluation of the KSTC Project

No evaluation component was built into the KSTC project in its initial planning. Hence no explicit indicators were set forth by the planners which could be used as a basis for an evaluation of the KSTC project. The purpose of this chapter is to specify how the project goal definition can be used as a basis for generating criteria for this evaluation.

The project goal definition sets forth desired quantitative and qualitative changes to result from the project. The definition also includes explicit criteria for evaluating these results. Among the results set forth in the definition are the objectives of achieving the described quantitative and qualitative teacher-training results in a short time and at a low cost. It should be noted that this evaluation is sociological-pedagogical in nature and hence no evaluation of the economic or cost-time dimension will be included. This evaluation is primarily concerned with the effectiveness of the educational process of the project relative to producing the desired quantity and quality of teachers 1/.

The following quantitative and qualitative project goals included in the definition are the objectives for this study:

(a) Quantitative project goals to be studied

1/ In any event it would have been difficult to perform an economic evaluation as cost and time criteria for the project have not been available. However, it would of course be of great value in the planning of future teacher training projects to include an economic evaluation component along with the sociological-pedagogical evaluation.

(i) To what extent does the KSTC project fulfil the goal (production target) of an annual output of by 1968, 44; by 1970, 98; by 1971, 128; and from 1972 onwards 144 S1 science teachers?

(ii) To what extent and for how long will the S1 science teachers graduated from KSTC stay in the teaching profession?

(b) Qualitative project goals to be studied

(i) Does the KSTC project change the students' attitude towards more progressive teaching methods?

(ii) How durable and consistent is any internationalization of a more positive attitude towards progressive teaching methods in the former KSTC students' teaching?

(iii) Does the KSTC project give the students the capacity to become well informed opinion leaders in their local communities?

(iv) How durable and consistent are the former KSTC students in any function they serve as opinion leaders in their communities?

(v) Does the KSTC project prepare the students for the role of innovators of progressive teaching methods with respect to pupils and teacher colleagues?

(vi) How durable and consistent are the former KSTC students in any function they serve as innovators of progressive teaching methods with respect to pupils and teacher colleagues?

In addition to this, a substantial part of the study consists of descriptive data which can serve as a background to the above-mentioned evaluation objectives. Among the complex of questions within this descriptive part of the study, the following questions may be pointed out as important:

(i) What are the characteristics of the KSTC students' social, economic, and educational background and what are their motives for choosing the teaching profession?

(ii) Will there occur any change in the students' assessment of the teacher's social status and their own motives for becoming a teacher during their three years at KSTC?

(iii) What possibilities for acting as innovators and opinion leaders will the former KSTC students have when they are posted in a secondary school as an S1 science teacher?

Thus it can be seen from these objectives that this study will be based partly on changes in the KSTC students during their college time and partly on what happens to the former KSTC students when they are posted as professional science teachers in their local communities. The data from the analysis of the professional situation will be related to relevant criteria in the project goal definition in order to assess the impact on the students of the KSTC educational process. Thus internal criteria stated in the project goal definition are to be used in the evaluation of project results. Furthermore, the study intends an evaluation of the total impact of the educational process at KSTC, including the factors of teachers, buildings, and equipment, course structure and educational policy.

4. Design of the Evaluation Study of the KSTC project

Administration of the Evaluation Study

This evaluation study is designed to run from 1969 till the end of 1972. The study is administratively divided into three phases:

Phase I: 1969
Phase II: 1970-1971
Phase III: 1972

The design and the instruments for phases I, II, III were developed in Nairobi where the evaluation project leader was stationed from February 1969 to May 1970. The collection and analysis of the data from phase I, the report of phase I and the outline for the collection of data for phase II and III were also prepared in Nairobi.

The evaluation of the quantity and quality of teacher-output is carried out by relating measurement data to internal quantitative and qualitative criteria for goal fulfilment found in the project goal definition. No attempt has been made to use external criteria, such as comparing quantity and quality of the teacher-output from KSTC with the output from other teacher training institutions.

It has been suggested that a comparison could be made between exam results of two groups of secondary school students, one group taught by KSTC-trained teachers and the other by teachers trained at other institutions in order to get an external measurement of the quality of the KSTC-graduated S1 science teachers.

It has not been possible to carry out such a comparative study during 1969, as the first group of students graduated from KSTC and thus did not start to work until 1969. It might be possible to try a comparative approach in 1971 when KSTC has produced two groups of teachers who have been out teaching one year or more, i. e. students who graduated in 1968 and 1969, or in 1972 when KSTC has produced three groups of teachers who have been out teaching one year or more.

However, the use of exam results as a criterion of quality of teaching seems dubious, as the exam is still mainly related to a traditional educational system. On the other hand it may be argued that the mere fact of a conservative exam system makes such a comparative study really interesting as the teachers certainly are supposed to teach within the existing educational framework. But, even if exam results were selected as a criterion, such a comparative approach will lead to certain methodological difficulties. For example the problems of:

(a) Selecting a criterion for how long a time (1, 2, or 3 years) a KSTC-trained teacher must have been teaching a certain group of students to make an impact on their exam results.

(b) Selecting a criterion for how many subjects (1, 2, or 3 subjects) a KSTC-trained teacher must have been teaching a certain group of students during a certain time (1, 2, or 3 years) before their exposure to progressive methods would be sufficient to have an overall impact on their exam results.

(c) Selecting a realistic sample size of KSTC-graduated S1 science teachers, given that, for example, a sample of 10 KSTC teachers at 30 students per class will involve testing 300 students, 50 KSTC teachers will involve 1,500 students and 100 KSTC teachers 3,000 students. With comparable-sized control groups the total number of students required becomes 600, 3,000, or 6,000 respectively, obviously totals difficult to obtain and expensive to test.

(d) Matching teacher groups - it is difficult to obtain S1 science teachers not trained at KSTC but trained at other similar institutions, who have been teaching the same subjects to a similar group of students a similar amount of time.

(e) Keeping constant other variables such as aided/unaided schools, urban/rural schools, equipment of the schools, staff at the schools, etc., which may confound the results.

Given adequate funds, some of the above-mentioned methodological difficulties might be surmounted, but (d) and (e) can probably not be overcome sufficiently to make it possible to confidently draw conclusions about the quality of students produced by KSTC graduates vis-à-vis those produced by teachers trained at other institutions.

Populations

For the three phases of the evaluation the following groups of students will be studied:

Group 1: newly admitted students at KSTC.

Group 2: third-year students (i. e. the students in their third year at KSTC).

Group 3: graduates (i. e. the students graduated from KSTC).

During the evaluation phase I, 1969, these three groups of students will, of course, consist of different populations. However, in later phases the same students will be measured at three different intervals, namely when they are newly admitted, when they have studied for three years at KSTC and then some time after graduation from KSTC.

In addition to these three groups of respondents, a fourth group has been studied during phase I, 1969, namely:

Group 4: tutors at KSTC.

Relations between testing methods and populations

The evaluation of quantitative project goals will be carried out by record-keeping. The evaluation of qualitative project goals will be carried out through group tests, mail inquiries, and individual interviews.

The students who are currently studying at KSTC will be tested through a group administered test. Through this method data will thus be collected from the groups of the newly-admitted students at KSTC and the third-year students at KSTC.

The same methods of data collection will be used even for the group of tutors at KSTC.

Mail inquiries and to a certain degree individual interviews will be used on the graduates of KSTC.

Instruments

There are six major measuring instruments for the evaluation of the qualitative project goals.

(a) Background questionnaire

- A general description of the students' social, economic and cultural background;
- the students' motives for status estimations of and experiences of the teaching profession.

(b) Attitude scale

- The students' attitude towards progressive/traditional teaching methods.

(c) Knowledge test

- The students' knowledge of cultural, political and economic matters primarily in East Africa but also in other parts of the world.

(d) Adjustment questionnaire

- The students' adjustment to and social status in their new occupations;
- a general description of equipment and social contacts in their new school.

(e) Modified adjustment questionnaire

- Same as (d)-1, but including more data on the S1 science teachers' conduct in their teaching and their role as possible opinion leaders in their local communities.

(f) Extra questionnaire

- This questionnaire resembles the background questionnaire and thus takes up questions about the students' attitudes to and motives for becoming a teacher as well as data about their estimations of the status of the teacher profession in Kenya.

Relation between quantitative and qualitative evaluation objectives and population

(a) Quantitative objectives

Objective 1: To what extent does the KSTC project fulfil the goal of an annual output of by 1968, 44; by 1969, 47; by 1970, 98; by 1971, 128; and from 1972 onwards 144 S1 science teachers?

Instrument: Record-keeping. Reliable records are kept at KSTC.

The populations: This objective is studied through comparisons between the same population, different years:

- The newly admitted students 1966 - the graduates 1969.
- The newly admitted students 1967 - the graduates 1970.
- The newly admitted students 1968 - the graduates 1971.
- The newly admitted students 1969 - the graduates 1972.

Objective 2: To what extent and for how long will the S1 science teachers graduated from KSTC stay in the teaching profession?

Instrument: Record-keeping. Four approaches to reach the graduates will be used:

(i) Contact with Teachers' Service Commission in Nairobi for checking on the graduates' postings;

(ii) information from the graduates on changes in their postings or careers;

(iii) contact with the graduates' headmaster at the school where the graduates were last known to have been teaching;

(iv) tracing of graduates through sending out interviewers to the school where the graduates were last known to have been teaching.

The populations:

- the graduates 1969, contact taken 1969, 1970, 1971 and 1972.
- the graduates 1970, contact taken 1970, 1971 and 1972.
- the graduates 1971, contact taken 1971 and 1972.
- the graduates 1972, contact taken 1972.

(b) Qualitative objectives (i) to (vi) and (i) to (iii)

In order to measure the qualitative project goals, three methods will be used: group tests, mail inquiries, and individual interviews.

Objective 3: Does the KSTC project change the students' attitudes towards more progressive teaching methods?

Instrument: The attitude scale measuring attitudes towards progressive and traditional teaching methods.

The populations: This objective is studied through comparisons in two different ways:

- different populations - the same year
  In phase I, 1969, through a comparison between the newly admitted students 1969, the third-year students 1969, and the graduates 1969.
- the same population - different years
  Through comparing a group of students in two different roles, i.e. as newly admitted students 1969 and as third-year students 1971.

Objective 4: How durable and consistent is any internalization of a more positive attitude towards progressive teaching methods in the former KSTC students' teaching?

Instrument: The attitude scale measuring attitudes towards progressive and traditional teaching methods.

The populations: This objective is studied through comparisons in two different ways:

- different populations - the same year
  In phase I, 1969, through a comparison between the third-year students 1969 and the graduates 1969.
- the same population - different years
  Through comparing the same group of graduates in different years.

Objective 5: Does the KSTC project give the students capacity to become well-informed opinion leaders in their local communities?

Instrument: The knowledge test on cultural, political, and economic matters primary in East Africa.

The populations: This objective is studied through comparisons between different populations, the same year.

Objective 6: How durable and consistent are the former KSTC students in any function they serve as opinion leaders in their local communities?

Instrument: The modified adjustment questionnaire administered from 1 September 1970 to 1972.

The populations: This objective is studied on different populations of graduates from KSTC in their second, third, respectively fourth year as teachers. No comparisons are made between the groups.

Objective 7: Does the KSTC project prepare the students for the role of innovators of progressive teaching methods with respect to pupils and teacher colleagues?

Instrument: The adjustment questionnaire administered in 1969 and the modified adjustment questionnaire administered in 1970 through 1972.

The populations: This objective is studied on different samples of graduates from KSTC in their first year as teachers. No comparisons are made between the samples.

Objective 8: How durable and consistent are the former KSTC students in any function they serve as innovators of progressive teaching methods with respect to pupils and teacher colleagues?

Instrument: The modified adjustment questionnaire administered in 1970 to 1972.

The populations: This objective is studied on different populations of graduates from KSTC in their second, third, respectively fourth year as teachers. No comparisons are made between the groups.

Objective 9: What are the characteristics of the KSTC students' social, economic, and educational background and what are their motives for choosing the teacher profession?

Instrument: The background questionnaire administered in 1969.

The populations: This objective is studied in phase I, 1969, on the newly admitted students to KSTC 1969.

Objective 10: Will there occur any change in the students' assessment of the teacher's social status and their own motives for becoming a teacher during their three years at KSTC?

Instrument: The extra questionnaire, administered in 1971.

The population: This objective is studied in phase II, 1971, on the third-year students at KSTC 1971.

Once again it can be noted that we will have a longitudinal pattern for these students as they will have been measured in two different roles, i. e. newly admitted students 1969 and third-year students 1971.

Objective 11: What possibilities for acting as innovators and opinion leaders will the former KSTC students have when they are posted in a secondary school as an S1 teacher?

Instrument: The adjustment questionnaire administered 1969 and the modified adjustment questionnaire administered in 1970 till 1972.

The populations: This objective is studied on the following groups:

- graduates 1969 - measured in 1969 till 1972.
- graduates 1970 - measured in 1970 till 1972.
- graduates 1971 - measured in 1971 till 1972.
- graduates 1972 - measured in 1972.

No comparisons are made between the groups.

To help summarize this methodology a diagrammatic outline is presented on the next page. In order to make the scheme easier to read, the evaluation objectives have been omitted as these cannot be related to a certain population alone or to a certain instrument alone but have to be related to various populations and instruments during the years 1969 - 1972.

Background variables

The background variables used within different groups are the following:

- different grades of achievement at KSTC;
- different attitudes to more progressive/traditional teaching methods;
- different postings after graduation from KSTC (city schools/country schools);
- different ethnic origin (African/Asian, citizenship/non-citizenship);
- male/female;
- different divisions in Cambridge School Certificate or East African Certificate of Education.

5. Report of Results

Evaluation objective 1

In 1968 the output was 41 graduates, drop-out 3, and in 1969, 46 graduates, drop-out 1. It can thus be said that the KSTC project has to a great extent fulfilled the output goal for 1968 and 1969 set forth in the project goal definition.

Evaluation objective 2

In the first phase report the results related to this evaluation objective are from only one group of graduates, the 41 students who graduated in December 1968, and who started teaching in 1969. In September 1969, 33 graduates, 80 per cent, were working as S1 teachers; 7 graduates, 17 per cent, were studying at various universities; and one graduate had joined private business. Eight graduates have thus left the S1 teacher career eight months after graduation, but since 7 of them have taken up university studies after recommendation from the College, it can be said that the KSTC project so far to a great extent has fulfilled the criteria set forth in the project goal definition in the sense that 97 per cent of the 1969 graduates have behaved in accordance with the criteria.

Evaluation objective 3

On the basis of these results of the attitude tests it appears that the KSTC project has contributed to a change of the students' attitudes in favour of more progressive teaching methods during their three-year study at the College.

Evaluation objective 4

On the basis of the results in this and previous section it is possible to tentatively conclude that the College contributes to a change of the students' attitudes in favour of more progressive teaching methods, and that this change remains after half a year of teaching.

Evaluation objective 5

It appears that the studies at KSTC do not influence the students' knowledge of cultural, political, and economic matters in East Africa. This conclusion, however, is tentative as we have studied

Table 1. Design for the evaluation study of KSTC, 1969-1972

	Instruments - Questionnaire					
	(a) background questionnaire	(b) attitude scale	(c) knowledge test	(d) adjustment questionnaire	(e) modified adjustment questionnaire	(f) extra questionnaire
PHASE I - 1969						
Group A: newly admitted students 1969	A	A	A			
Group B: third-year students 1969		B	B			
Group C: graduates 1969		C		C		
Extra group X: tutors of KSTC 1969		X	X			
PHASE II - 1970-1971						
1970						
Group D: third-year students 1970		D				
Group B: graduates 1970		B			B	
Group C: graduates 1969		C			C	
1971						
Group A: third-year students 1971		A				A
Group D: graduates 1971		D			D	
Group B: graduates 1970		B			B	
Group C: graduates 1969		C			C	
PHASE III - 1972						
Group A: graduates 1972		A			A	
Group D: graduates 1971		D			D	
Group B: graduates 1970		B			B	
Group C: graduates 1969		C			C	

two different groups of students. The results might nevertheless be taken to suggest that the project does not fulfil the goal of increasing the students' knowledge of East African cultural, political and economic matters - i.e. to make the students more 'well-informed' about the society in which they are going to act as teachers and possible opinion leaders.

Evaluation objective 6

Study not yet completed.

Evaluation objective 7

According to these results, based on the subjective estimations of the graduates, it appears that the KSTC project has succeeded in preparing the students for the role of innovators of progressive teaching methods, at least in the sense that the graduates are actually using these methods and that their pupils and teacher colleagues on the whole seem to welcome this way of teaching.

It should, however, again be noted that the results are based on the subjective estimations of one group of graduates.

Evaluation objective 8

Study not yet completed.

Evaluation objective 9

A description of the KSTC students' social, economic and educational background.

Evaluation objective 10

Study not yet completed.

Evaluation objective 11

It appears that the graduates, particularly those who teach in country schools, live under quite severe conditions, which might make it difficult for them to function effectively as teachers and hinder their ability to act as innovators of progressive teaching methods.

It might, however, be noted that 63 per cent of the graduates state that they like working as teachers extremely or rather well and that this group consists of about the same per cent of graduates teaching in city and country schools, 65 per cent and 60 per cent.

6. Concluding remarks

At this stage of the long-term evaluation study it is only possible to draw tentative conclusions. The data and results discussed above indicated that the project is successful in its major goals of producing the desired number of teachers and that these teachers are so far remaining in the teaching profession. Further, the project appears successful in changing the students' attitudes in favour of more progressive teaching methods. In addition, the teachers appear to use the progressive teaching methods employed at the College despite the often poor equipment of their schools. The College, however, appears not to be notably successful in improving the students' general knowledge of their cultural, political and economic milieu, which knowledge would probably enhance their ability to fill their likely role as opinion leaders in their local communities. The data also indicate that many of

the graduates are somewhat dissatisfied with the lack of amenities and social contacts in their new postings. To meet these problems it might be appropriate for the College to introduce periodic workshops discussing current affairs. In addition, a seminar at the end of the three years could brief the students on some of the practical problems they will face as new teachers. Recent graduates should participate in these seminars and issues such as those examined in this study could be discussed.

Annex II

THE EXPERIENCE FROM FAMILY PLANNING TRAINING IN CEYLON

During 1965 the Swedish-Ceylon Family Planning Pilot project was transformed from a clinical pilot project in two villages into a nationwide governmental programme to include about 600,000 families to accept and practise family planning in the course of a ten-year period. With this in mind, a training programme commencing in 1966 and continuing until 1968 has been drawn up for all Ceylonese health personnel (Medical Officers of Health, Public Health Midwives, Public Health Nurses, Public Health Inspectors). During the experimental period from 1958 to 1965, the activities of the Swedish project were of a medical-gynaecological nature and the Ceylonese personnel employed in these activities were given training in family planning. At the start of the governmental programme, early in 1966, the training applied during the experimental period was retained - more or less - unaltered. Since this organisation had not been preceded by any kind of systematic planning of training activities such an organisation being based rather on common sense predictions of what the various groups of pupils needed to be taught, the obvious requirement was to evaluate the suitability and efficiency of the training given.

This evaluation was carried out at the instance of the Swedish International Development Authority (SIDA) during the periods 23 April-27 May, 7 November-13 December 1966 and 14 June-30 July 1967. The main purpose of the evaluation was to find out to what extent the training objectives, methods and supervision as well as the content of the courses, were satisfactory and in what respects changes were called for in order to render the training successful. The preliminary phase of the survey - when information was collected through participation in the ordinary work of the project, study visits to the two training centres at Bandaragama and Point Pedro as well as through interviews with course planners, teachers and trainees - showed that there was good call for an improvement of the efficiency of the training, and a series of changes was duly effected in collaboration with the Ceylonese teaching staff. The evaluation was concerned with the training of the following groups: Public Health Nurses, Public Health Midwives and Public Health Inspectors. Training courses for doctors were excluded on the advice of the Director of the project.

1. Evaluation

This was primarily effected through two written tests, identical in content, which were given at the beginning and end of the course. The purpose of this evaluation was to show that the trainees had increased their knowledge as a result of the course and to provide them with a collective feedback of the information gained during the course. The last item of the course dealt with these tests and included a discussion of them. However, the teachers were not informed of the results.

One of the tests (test 1) consisted mainly of items of the essay question type (see Annex III), while the second test (test 2) consisted of four multiple-choice questions and five questions of the short-answer type.

One point was scored for every correctly answered question. The results were summarized for each trainee in the form of a total score for the pre-test and post-test and the difference between the two. In order to obtain a more compact expression of the pre-test and post-test results, averages were calculated for all the courses held in 1966. The following table shows the averages for Test 1 on all courses for midwives, nurses and inspectors.

	Pre-test	Post-test	Gain	N
Midwives	4.83	7.02	2.19	183
Nurses	5.37	8.18	2.81	88
Inspectors	5.86	8.71	2.85	71

Average on Test 1 for the different categories of Health Personnel at the Bandaragama training centre during 1966.

The results of Test 2 were similar. One is struck by the high pre-test level, which is about half the maximum score or over. This implies that the group had already attained 50 per cent of the objectives measured by the test before attending the course. In order to show something of the pre- and post-test levels for all items, the average for each item has been calculated and expressed as a percentage (see figures 1-3).

Averages equal to half the maximum number of points obtainable and over were noted for items 1, 3, 6 and 8. Nearly everybody answered item 3 correctly, and item 6 also has a relatively high correct-response frequency.

The midwives showed a relatively slight improvement between the pre-test and the post-test. The possible gain amounts to 5.17 but the actual gain only amounts to 2.18. One should, however, not be too precipitate in regarding this as a measure of the effectiveness of the course. The marking of various items left a certain amount to be desired, added to which the tests only covered a limited number of the training objectives. But there is every reason to suppose that the evaluation left a certain amount to be desired.

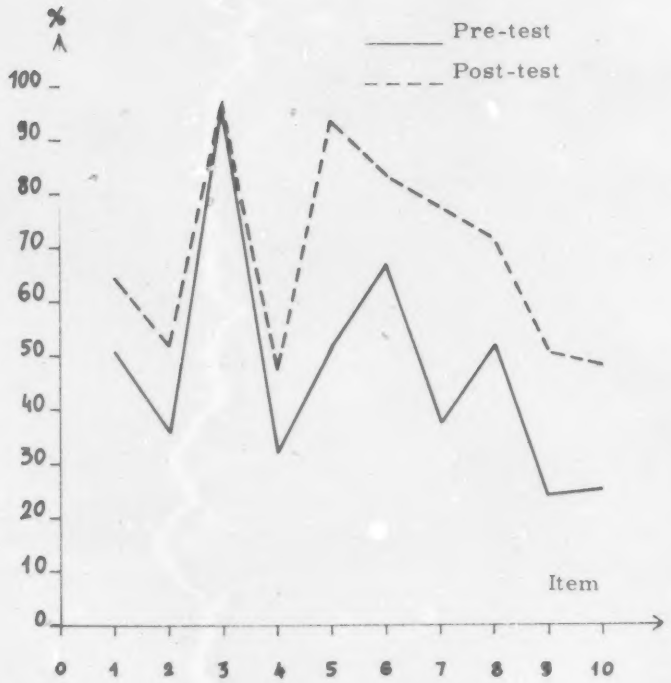


Figure 1. Average response frequency (in percentages) for each item in pre-test 1 and post-test 1 for midwives (N = 183)

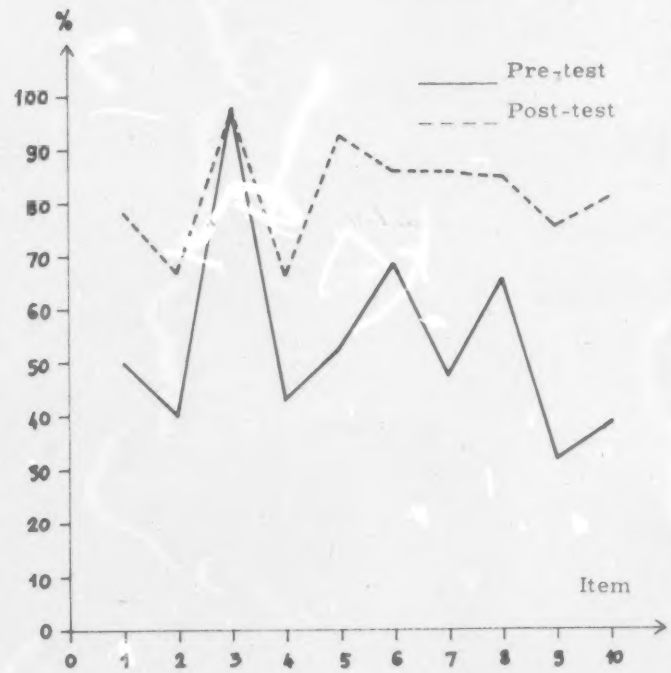


Figure 2. Average response frequency (in percentages) for each item in pre-test 1 and post-test 1 for Public Health Nurses (N = 88)

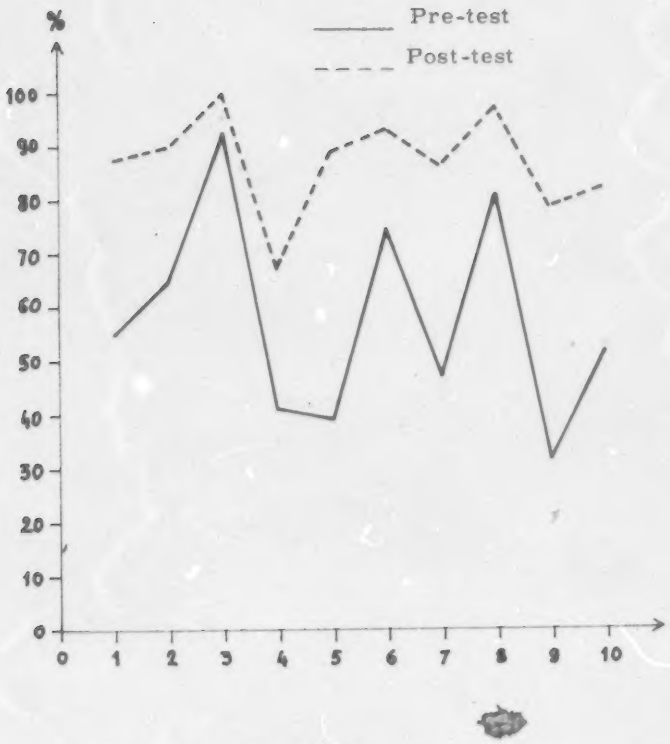


Figure 3. Average response frequency (in percentages) for each item in pre-test 1 and post-test 1 for Public Health Inspectors (N = 71)

2. Summary of the principal faults of the training

The main faults of the training are summarized below in ten points, all of which were regarded as crucial to the part played by the training in making the target attainable. It should be emphasized that these points are to be regarded as a summary of the diagnosis made during the survey, and not as a criticism of the training.

(a) Job descriptions regarding the tasks of the health personnel within family planning were completely lacking. The training programme was indirectly based on the ideas of these tasks which had gradually been evolved during the pilot project.

(b) Certain topics were too theoretical and unnecessarily comprehensive and complex in relation to the time available for the training and the nature of the tasks.

(c) There was a relatively large and unplanned overlap between different lessons.

(d) The time allotted to group work was inadequate.

(e) Teaching aids were to a very great extent lacking. The blackboard was the principal resort on all occasions.

(f) The field work (journeys included) took up no less than about 46 per cent of the total duration of the course, but its training effect was in nothing like the same proportion.

(g) The evaluation was designed to show that the trainees had increased their knowledge and to provide a certain feedback of what had been learned on the course. The two tests used at the beginning and end of the training only covered certain aspects of the course. The results were not communicated to the teachers, nor were they used as a basis for alternations to the training. Thus the evaluation was not integrated in the training, which therefore lacked very important element, namely a deliberately built-in feedback system to facilitate successive modifications and improvements to the training.

(h) In the job situation the Health Personnel were without any kind of educational material such as flash cards, leaflets, models, etc. whatsoever.

(i) The training was well directed administratively, but there was no real pedagogical leadership at all.

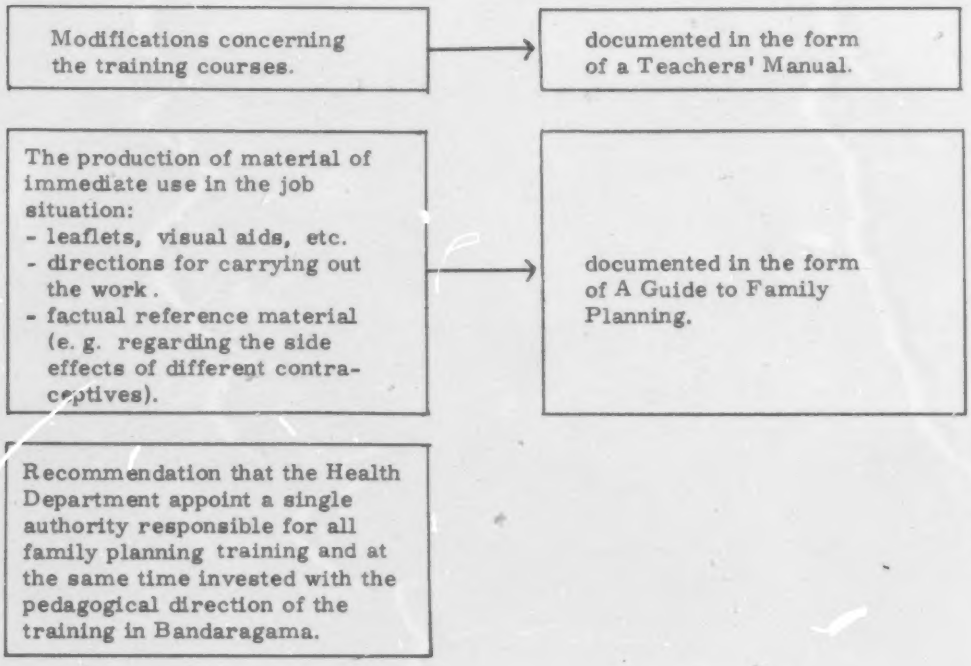
3. Changes effected

Introduction

In order to remedy the training deficiencies reviewed in the previous section, a working party was set up.

The future work was divided up for planning purposes into three elements, as illustrated in the diagram on the next page.

The objective for the three remaining weeks of my first visit being now to plot the main contours of a revised training programme to be tried out during the summer and early autumn of 1966.


Modifications concerning the training courses.
documented in the form of a Teachers' Manual.
The production of material of immediate use in the job situation:
- leaflets, visual aids, etc.
- directions for carrying out the work.
- factual reference material (e.g. regarding the side effects of different contraceptives).
documented in the form of A Guide to Family Planning.
Recommendation that the Health Department appoint a single authority responsible for all family planning training and at the same time invested with the pedagogical direction of the training in Bandaragama.

Taking the job description as our starting point we tried to formulate the training objectives behavioural terms, but this procedure had to be abandoned as too prodigal of time. Instead the training was divided up into topics, with the job description as background, after which behaviour in the job situation, training objectives, course content, media and evaluation were discussed in relatively close detail regarding each topic. The material thus produced provided the foundation of the Teachers' Manual and the Guide to Family Planning.

We shall now turn to consider various elements in the training which were revised or reconstructed.

The framing of job descriptions

A preliminary draft of the job descriptions was ready by June 1966 and was successively revised. The policy expressed in the following job description, which, together with the corresponding job description for PHNs and PHIs, was approved by the Advisory Committee in August 1967, is that previously laid down by the Health Department, making the midwife the key person in the programme.

Instructions for the guidance of Public Health Midwives in Family Planning

General:

1. Discuss with the couple - whenever possible - about Family Planning.
2. Get in contact with the expectant mothers at the Clinics and during Home Visits and discuss Family Planning.

3. Meet lactating mothers and talk to them further about what they had already been told prior to delivery.
4. Visit mothers who are practising Family Planning and encourage the continuance of the practice.
5. Keep proper records of all Family Planning activities.
6. Make contact with women's organizations in the area.

Specified Duties:

Routine Home Visits:

1. Estimate the number of productive couples in the area.
2. Introduce the subject when some problem of personal interest to the family is being discussed.
3. Stress the need for spacing children.
4. When talking to families, consideration should be given to religious susceptibility, economic background and social set-up of the locality - also considering the educational standard of the couples concerned.
5. Whenever possible have discussions on Family Planning with wife and husband together.
6. If the circumstances are conducive talk about various methods as indicated below:

(i) Female	- Oral tablets - Loops - Foam tablets - Spermicidal pastes - The diaphragm and jelly - Surgical sterilization
(ii) Male	- Condoms - Surgical sterilization
(iii)	- Safe period - Coitus interruptus

7. Discuss the relative value of each method. Use educational material and samples of contraceptives in the discussion.
8. Hand over leaflets on the subject.
9. Help the couples to choose the methods they like to practise.
10. Supply condoms and foam tablets if required.
11. Direct those willing to use methods requiring a Doctor's examination to the nearest Clinic. Give them the reference card.
12. Clarify any false information that may have been spread regarding the different methods of Family Planning.

Clinics (Maternal and Child Health):

13. Include Family Planning in routine talks on various health subjects.
14. When discussing with expectant mothers try to introduce Family Planning if suitable.

15. Speak to the mothers regarding growth and development of children and explain how too frequent pregnancies affect the health of children. Also how pregnancy and lactation affect the health of the mother.

16. Whenever possible talks should be supplemented by educational material.

17. Assist the Medical Officer with I.U.D. work if asked.

Special Home Visits for Family Planning Follow-up:

18. Visit homes of those who are using family planning methods and check up to see whether:

(i) they are following the method as advised;
(ii) there are any side-effects;
(iii) they require a change in the method;
(iv) they require further supplies of contraceptives.

19. Visit homes of those who are using methods at the following stages:

(i) as early as possible visit the mothers and see whether they are satisfied with the method;
(ii) for the purpose of giving new supplies of contraceptives, before the stock of contraceptives with them (mothers) are over.

Loop:

(i) after being informed by the Medical Officer that a loop has been inserted, a visit should be paid at the first opportunity and notes taken of any side-effects;
(ii) after one month;
(iii) once in three months if there are no side-effects;
(iv) if there are side-effects whenever visiting that particular locality for routine work.

Oral Tablets:

(i) first opportunity (according to routine programme) after receiving information to see for any side-effects or problems;
(ii) before the tablets are finished;
(iii) re-visit is necessary in order to direct mothers to a clinic for further supplies or medical advice.

Record Keeping:

20. Use the following records in connection with Family Planning work:

(i) ante-natal card;
(ii) the information (form) to the Public Health Inspector;
(iii) the pink card;
(iv) reference (form) to the Doctor;
(v) the Receipt book;
(vi) the Monthly Return form;
(vii) the Yellow card;
(viii) other forms.

Contacts with Women's Organizations:

21. Keep contact with Mahila Samities, Kantha Samities, Rural Development Societies and other Women's Organizations in order to get them to support the Governmental Family Planning Programme;

22. Enlist the co-operation of these groups of women to organize educational programmes on Family Planning.

Assistance from the other staff:

23. Contact the Public Health Inspector of the area in the event of the husband needing family planning advice;

24. Contact the Public Health Nurse of the area in the event of any difficulty in educating the mother on family planning.

Thus the Public Health Midwife has to carry out family planning work along with her Maternal and Child Health activities and she plays the following roles:

1. Role of an educator - educating couples and motivating them to use family planning methods.
2. Role of a supplier - supplying contraceptives.
3. Assisting role - helping couples to get medical attention in connection with family planning methods;
   - insertion of the loop;
   - diaphragm and jelly;
   - sterilization.

The main responsibility for the Public Health Inspector is community health education in order to motivate people for family planning. He would be conducting group meetings with community and other suitable groups. One of his special duties would be motivating the husbands for family planning.

Despite the lack of precision which one might find in these job descriptions, they provided an excellent basic material in determining training content and as directions for the conduct of the work in the field.

Teaching aids and job aids

In order to provide the public health with a minimum of educational supply it was planned to produce as early as possible a set of pictures illustrating the process of conception and the functioning of different contraceptives.

During 1966 drafts were also made for two leaflets providing brief information on family planning and various contraceptives. These were distributed in 1967, and during the first year of the programme they were the only informative material available.

Mention should also be made in this connection of 'A Guide to Family Planning'. This is a manual designed to give the field worker (PHMs, PHNs and PHIs) facts about family planning, the government programme and instructions for the family planning job situation. The manual serves as a ready reference and reminder of what the Public Health Personnel has already learned in the training centre. Special importance is attached to health education and aspects such as:

- the creation of a need of family planning;
- resistance to change;
- how to overcome resistance.
- motivation.
- human relations;
- first contact with people;

- hints for a visit to a family;
- hints for a talk to a group;
- hints for discussions.

Theoretical course content

Classroom instruction was now allotted rather less time, but the most important change lay in a re-structuring of the total content so that more scope was given to sections dealing with pre-conditions of behavioural change and the practical conduct of the work, at the same time as more irrelevant and excessively complicated course content was eliminated.

As can be seen from Table 2, the various subjects were given new names designed to convey more clearly what they cover. A new section entitled 'Resistance to Family Planning' was added to Health Education.

The group work

Considerable changes have been made to the group work in that the time allotted to it has been increased and greater emphasis has been placed on individual training. The objective of this part of the training was formulated as follows:

- to give each trainee opportunity to practise the educational aspects of her duties;
- to make each trainee competent in applying the knowledge of educational principles and using aid material when communicating with groups or individuals;
- to help each trainee to acquire the art of introducing family planning without creating an artificial atmosphere.

The subject of group practice is introduced to the whole group, emphasis being put upon the form of expected trainee behaviour after such practice. The trainees are divided into three groups during one of the lessons on health education. This part of the training is then described in detail. The three groups will have practical lessons at three different stages with a teacher to guide and assist them. The following practical lessons are provided:

(i) talk to a group without aid material;
(ii) talk to a group with aid material;
(iii) dialogue with a mother without aid material;
(iv) dialogue with a mother with aid material.

The groups perform separately during the first 4 lessons. Then they meet as one single group and trainees perform in front of the entire group. Lastly the groups meet separately during the next two lessons, when they will be capable of more experienced performance.

Field training

The objective of the field training is to give the trainees a thorough knowledge about how to carry out home visits in connection with family planning. Each trainee has to write field notes regarding work done by her. Every instructor is expected to plan the day's work and discuss same with the trainees before going to the field. The trainee shall be given maximum responsibility in approaching and dealing with the situations while the instructor assists whenever necessary.

Table 1. Resumé of topics for public health midwives

Topics	Methods			
	Class room lessons	Group work and individual training	Demonstration	Total
1. Orientation	1			1
2. Why Family Planning?				
(a) Health reasons	1			2
(b) Economic reasons	1			
3. The Governmental Family Planning Programme	2			2
4. Contraceptive Methods	5			5
5. Health Education				
(a) Principles and methods of health education	3			
(b) How to communicate with a family	1			14
(c) How to communicate with a group	2			
(d) Practical lessons		8		
6. Resistance to Family Planning	1	3		4
7. Record keeping	3			3
8. Field training		14		14
9. The role of the health personnel in the Family Planning Programme	1			1
10. Demonstration - IUD Clinic			2	2
11. Seminar		7		7
12. Miscellaneous (Films on Family Planning, extra lessons)	3			3
13. Evaluation	2			2
Total	26	32	2	60

(x) The figures refer to number of lessons (one lesson = 45 minutes).

In order to remedy the inefficiency of the field training, it was suggested at one point that the number of instructors be increased so that each instructor only had one trainee to supervise. This alone would have resulted in a 100 per cent rise in efficiency.

4. Evaluation

As we have already observed, one of the leading principles in the revision of the training has been to test it successively so that the changes effected can be empirically implanted in both teachers and trainees. The training scheme devised after the first visit was tried out at the Point Pedro training centre and evaluated by means of two written tests together with systematic observations by the training centre Health Educator of the functioning of the training. The experience thus gained led to a modified form of the training which was extended to Bandaragama in December 1966. Further changes in the training scheme were decided on at teacher staff conferences, which were now held regularly every month. Thus the training scheme described in this part of the report is the result of an informal and formal process of evaluation and refers to the training scheme as it stood by the summer of 1967. Thus it should be noted, in keeping with the attitude previously adopted, that the training was not conclusively evolved but that it is hoped that evaluation has been integrated in the training system to facilitate successive evaluation and revision as necessary.

The evaluation incorporated in the training can be said to have the following objectives:

(a) to assess to what extent the individual trainee is reaching the stated training aims;

(b) to assess the progress that the individual trainee is making during the training;

(c) to determine the effectiveness of the teaching procedure.

These objectives are evaluated by means of the group work, the seminar and the field training as well as two written tests.

The redisposition of the group work makes it possible to evaluate individual trainees' performance and knowledge during the course, at the same time as this evaluation can be used to a certain extent as a feedback to the theoretical lessons preceding the group work. When a talk is given or a dialogue situation presented, the audience in the group are instructed to observe the performance and evaluate it. Trainees practising giving a talk to a group (i. e. Place of talk: Child Welfare Clinic in a Muslim community; Group: mother against family planning on religious grounds; Topic: family planning is not contrary to religion) are directed to observe the following points:

(a) Does she stand in front of the group correctly?
(b) Does she use the right expressions?
(c) Does she use gestures correctly?
(d) Has she contact with the group?
(e) Does she hold the attention of the group?
(f) Does she impart the facts correctly and in a relevant manner?
(g) Does she support her words with the satisfactory use of the material?

(h) Does she allow the audience time to grasp facts?
(i) Does she face the audience properly - not turn her back when using the materials?
(j) Does she summarize at the end and finish on time?

When the trainees are practising a family planning dialogue with a mother in role-playing situations they are made to assess the following:

(a) Does she attempt to win the confidence of the mother?
(b) Does she greet the mother when meeting?
(c) Does she talk to the mother on matters of interest to the mother?
(d) Does she introduce the subject of Family Planning in a natural manner?
(e) Does she use correct expressions?
(f) Does she use the aid material satisfactorily?
(g) Does she listen patiently allowing the mother to give her views?
(h) Does she relate scientific facts to the ideas of the mother correctly?
(i) Does she embarrass the mother?
(j) Does she keep within the time limit?

Each presentation is discussed on the basis of the trainees' and the teacher's observations. One constantly recurring observation in the summer of 1967 was that trainees simply did not know how to use materials. They also had difficulty in broaching the subject of family planning in normal conversation without creating an artificial atmosphere.

Written evaluation is effected with the help of three questionnaires:

- 1 multiple-choice test;
- 1 test with short answer items and limited-response items;
- 1 general evaluation questionnaire of the type described on page 93.

The multiple-choice test consisted originally of 35 items but was subsequently reduced to 25. The only knowledge that multiple-choice questions really test is that of recognition, which makes them of limited value when trying to determine whether objectives of other kinds have been attained. This type of test is employed in the present context mainly for practical reasons: it can be corrected rapidly and the results promptly conveyed to teachers and trainees and discussed in the course of training.

To supplement the multiple-choice test another test was devised containing questions which were thought to resemble the demands of the actual job situation, e.g.:
What advice would you give a mother who uses oral pills and complains of:

(1) Nausea .....
(2) Breast tenderness .....
(3) Spitting blood .....

Altogether the test contains 16 questions which take 1 hour to answer.

The following plan provides a summary of the number of questions covering different topics:

Topic	number of multiple-choice questions	number of short-answer questions
2 (a)	0	2
2 (b) & 3	9	2
4	5	7
5 (a) (b) (c)	7	0
6	4	0
10	0	5
	25	16

As has already been observed, a more integrated evaluation is gauged from topic 5 (d) (Health Education - practical lessons), topic 8 (field training) and topic 11 (the seminar). For some topics the evaluation is included in the lessons, i. e. in topic 7 (record keeping) the trainee practises how to complete the different records and forms that are used. During the lessons 'imaginary' cases are used and each trainee has to fill in the records, and some trainees also practise in front of the whole group at the flip-over.

Figure 4 shows the results of the multiple choice test given on the 1967-68 midwives' courses. The average pre-test standard was about 30 per cent, while the average post-test standard was 80 per cent. The items with the lowest post-test standard were topic 2 (b) - Why Family Planning? Economic reasons - and topic 3 - The Governmental Family Planning Programme.

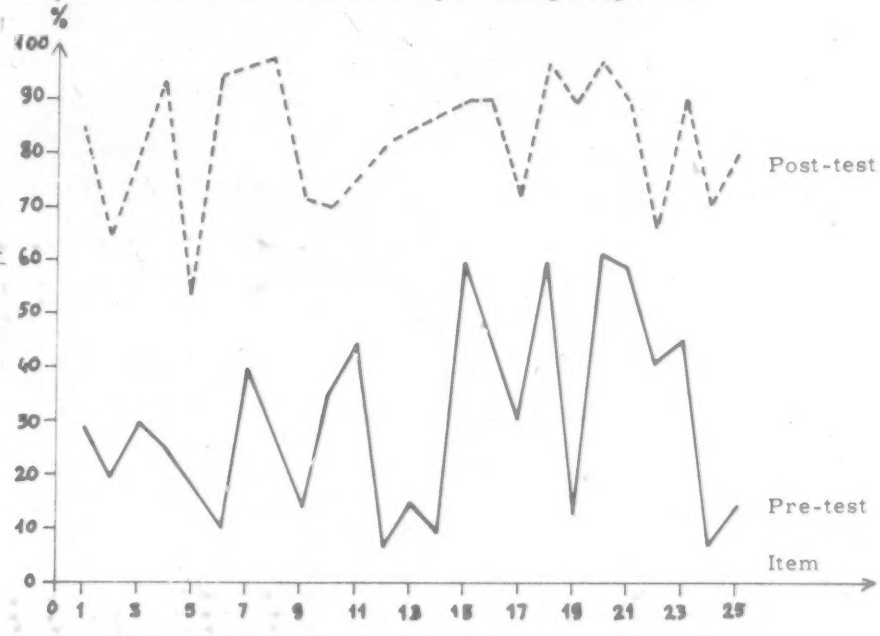


Figure 4. Average response frequency (in percentages) for each item in the multiple-choice test for midwives in 1967-68 (N = 100)

In the special questionnaire the trainees are given the opportunity to set down their opinions of the design of the course and its shortcomings as they see them. The results of this questionnaire were discussed, together with those of the tests, at teacher-staff conferences, and these discussions have led to repeated revisions of the training.

5. Teachers' Manual

The revised training course is documented in a Teachers' Manual which is intended as a guide to teachers entrusted with implementing the family planning training programme. Objectives, lesson outlines, training aids and teaching hints are given in that order under each topic. We can illustrate this by reproducing topic 2 (a): Why family planning? Health reasons (1 lesson):

Objective: to educate the trainees about the need for family planning from the point of view of the health of the mother, the children and the father.

Outline:

1. Protecting the health of the mother:
   (a) frequent pregnancies affect the health of the mother;
   (b) an expectant mother has to look after herself as well as the baby growing in her womb;
   (c) breast-feeding the new-born places a strain on her health, etc.
2. Protecting the health of the children:
   (a) if mother gets pregnant within 2-3 months after baby is born she may not be able to produce enough milk to feed the infant already born because of weakness;
   (b) breast milk is necessary for infant's health. Mother's milk gives the baby a better chance to live;
   (c) baby can be born prematurely and can become weak as a result of frequent pregnancies.
3. Protecting the health of the father:
   (a) health will be affected by overwork in supporting a large family;
   (b) if baby is weak and sick father cannot rest.

Training aids: Flannelgraph - words and terms in colour.

Annex III

BANDARAGAMA CENTRE
QUESTIONNAIRE TO BE ANSWERED AT THE BEGINNING AND AT THE END OF THE TRAINING

1. Which factors play a considerable role when a family decides to practice Family Planning?

2. Do you think that a family would change its attitude to Family Planning in case any of the above factors mentioned by you in reply to question 1 would change?

3. To what religion do you belong?
Do you think that your religion is in favour of Family Planning or not?
(a) explain why not in favour:
(b) explain why in favour:

4. When paying Family Planning home visits to a family, there are advantages and disadvantages-
(a) what are the advantages?
(b) what are the disadvantages?

5. Please mention what Family Planning methods could be issued-
(a) in the field?
(b) in the clinic?

6. When do you think a family is most favourable to Family Planning?
(a) before childbirth?
(b) after childbirth?

7. If the family is indifferent to Family Planning, what can the reason be?

8. How can you overcome the reasons mentioned in reply to question 7?

9. What are the points you would consider in teaching a trainee in the field?

10. Mention the ways how Public Health personnel could assist in a Family Planning Programme in a rural area.

Document No. 6

GUIDELINES FOR I.B.R.D.'S EDUCATION SECTOR REVIEWS AND EDUCATION 1/ PRE-INVESTMENT STUDY PROGRAMS

by M. Hultin and C. van Dijk

1. OBJECTIVES OF THE WORLD BANK GROUP'S FINANCING IN EDUCATION

1.1 The World Bank Group's objective of financing education in developing countries is the promotion of economic development. The Bank is, however, fully aware of the social, environmental and cultural objectives to be served by the education systems, and a growing knowledge of the effect of these factors on development has led to the formulation of broader Bank objectives. Those broader objectives have been reflected in the Bank's Education Sector Working Paper of September 1971. The Bank, however, continues to focus its operations on education projects which are oriented towards economic development.

1.2 Increased emphasis is being placed on the qualitative aspects of education. Existing systems of education and training are not effectively contributing to development because of deficiencies in orientation, content and technology. The Bank is giving particular attention to projects which would lead to improvement, modernization and economic relevance of the education and training sectors or sub-sectors.

1.3 The serious shortage of financial and other resources may defeat these objectives unless the internal efficiency of education systems is improved greatly. A major objective of Bank financing should, therefore, be the promotion of efficiency so that improved outputs will be obtained with lower inputs of scarce resources. To attain this objective new structures, techniques and changed input combinations may be required.

1/ The word 'Education' in the title (and in the text if not stated otherwise) covers both what is traditionally defined as 'Education' and what is defined as 'Training'. The word 'system' is used in the widest context and includes 'formal' as well as 'non-formal' activities.

1.4 In short, the Bank's objectives are: first, qualitative improvement of the education and training systems to meet economic and other priority development needs; second, increased efficiency to reduce cost levels to the limits of available resources; third, quantitative expansion of facilities where such expansion is justified by manpower demands; fourth, broadening the base of human resource development by increasing opportunities for basic education and skill formation outside the formal school system.

2. OBJECTIVES OF EDUCATION SECTOR REVIEWS

2.1 The objectives of education sector reviews are to:

(a) Analyze the education system of a country, and its capacity to promote economic, social, environmental and cultural development efficiently;

(b) Suggest, whenever necessary and possible, ways and strategies to improve, expand or reduce the education and training system so that it will achieve aims which are relevant both to the society and to overall development of the country; and, in close conjunction with the proposals in (b);

(c) Identify priority investments in education; and

(d) Prepare programs of pre-investment studies necessary for development of the education sector.

2.2 An education sector review should go beyond the objective of World Bank financing as described in Section 1, and should deal with desirable social, environmental and cultural objectives of education and training, since no comprehensive education sector review can be made without considering these aspects. The review should, of course, primarily serve the country in which it is undertaken, and this country will undoubtedly also be interested in education objectives other than those directly promoting economic development. The review should, furthermore, serve agencies other than the Bank Group which might have somewhat differing education policies. The main emphasis should be, however, towards pre-investment studies and projects for economic progress, with consideration to underprivileged areas and population groups.

2.3 The main purposes of these guidelines are to: (a) describe the necessary analysis preceding the identification of education investment projects and of pre-investment studies, (b) describe various aspects of education pre-investment studies, and (c) describe the execution of education sector reviews.

3. STRATEGY OF EDUCATION SECTOR REVIEWS

3.1 Until recently, international and bilateral agencies' activities in education have been mainly concerned with assisting the developing countries in expanding their education systems largely within existing frameworks. Although those frameworks have been questioned from time to time, few

serious attempts were made to review from scratch aims, contents, structure, technology and financing of the education systems. One reason why a time-consuming overall review of existing systems was seldom undertaken was the urgency of expanding education within the shortest possible time to meet a desperate shortage of manpower in the 1950's and 1960's. Another reason was a lack of awareness of the system's low external productivity and internal efficiency and of its costliness in relation to available financial and manpower resources.

3.2 Further expansion of existing education systems would in many cases lead to a qualitative deterioration and excessive education expenditures. There is, therefore, a consensus among major developing countries and international and bilateral education agencies that changes aimed at increasing external productivity and internal efficiency and decreasing production costs per graduate are essential prerequisites to further expansion. Necessary changes can hardly be achieved, however, within existing frameworks. New approaches are necessary and old concepts must be systematically questioned. The traditional tripartition of the system into primary, secondary and higher education may no longer be feasible. Boundaries between formal and non-formal education, as well as between education and training may be artificial and may be abandoned. The formal education of a child in the 7-12 years age bracket should not a priori be considered as more important than the training of the adult. A good pre-school environment and suitable nutrition are essential for the child's intellectual development and appropriate parents' education may be a method to achieve this. The concept of lifelong learning should not be overlooked and the importance of informal training for those outside the formal system must be emphasized. Administrative boundaries between mass media and education should not be allowed to prevent a full and integrated use of such media for learning purposes whenever feasible. Existing concepts of utilization and composition of staff, physical facilities and the academic year should not conceal the fact that those concepts are based on traditions of an old society without access to today's technology and means of communication and transportation.

3.3 It would be unrealistic to believe that the short time generally available for an education sector review executed by expatriates (compare Para. 3.5) would permit the creation of an entirely new education system, and there are education elements which should survive in every system. Nevertheless, a searching inquiry into all parts of the existing system, together with evaluation of alternative structures and technologies, might be a useful and necessary first step to bring about greater willingness of countries to experiment and innovate.

3.4 The reviewers should, therefore, look at a country's education and training system in the widest sense and evaluate the role of the system in promoting overall development. It should be realized that each part of the system should comprise a building block of a complete education pyramid. The purpose of each block is chiefly to prepare the student for a place in the society, rather than to prepare him for a place in the next stage of the education system. But a free flow of students

within the system should also be possible. The relation and interaction between the labor market and the education system should be studied in depth. Much attention should be given to the employability of school leavers and the establishment of a school-leaver tracer system might be desirable.

3.5 Since an education sector review must fully reflect the country's needs and aspirations and lead to effective implementation (which must include provisions for a continuous debate, discussion and review of the kind of issues with which the survey will be dealing), the country's own educators and other specialists should ideally be responsible for and execute the review. The role of outside experts would be to provide technical know-how as well as appropriate information of recent development of education in other areas of the world for comparative purposes. An education sector review of the type and depth described in these guidelines should be undertaken by teams of expatriates under special circumstances. Such circumstances might be the need to identify education priorities and projects within the context of a multilateral or bilateral development program in which time and manpower constraints prevent a survey fully undertaken by nationals. In other cases the country may consider an evaluation of the education system by an external organization an important asset to arrive at an objective and politically independent proposal. The country's own educators and other specialists should, however, always be involved in the work of the survey team to the extent possible and consistent with the overall objectives of the survey.

3.6 An education review should start with the aims and objectives of the country's development efforts. What kind of society is expected in political, economic, social, environmental and cultural terms? What is the planned economic growth? Are the expectations realistic? What would and should be the roles of the major social and ethnical groups in the future? What would be the role of the woman? How might and should agriculture, industry and trade develop? Have the expected or planned developments been conceived in operational terms? Is it possible to define the demands on the education system which the prospective overall development of the society would cause?

3.7 The review of the country's overall development shall show the way to and guide the discussions of the aims and objectives of the education and training system, formal as well as non-formal and its external productivity. Are the proclaimed educational aims and objectives relevant to the development efforts? If the aims and objectives are relevant, are they also achieved - i.e. is the external productivity satisfactory? How do we know that they are achieved? Aims and objectives are often vaguely defined and seldom described in such operational terms as would permit quantitative evaluation. They may have little relevance to development and a difficult but necessary task for a study team would be to define alternative aims and objectives in such cases. Only in the light of such redefinition is it possible to proceed with a fruitful analysis of the system. The discussion on education aims and objectives must be related to such factors as the country's demography, the rural and urban development and migration, tribal and religious divisions, underprivileged areas and population groups, possible uneven distribution of the country's assets with pockets of poverty, possible areas of cultural isolation, employment, semi-employment and unemployment, bureaucratic

characteristics, pattern of leadership roles, etc. A discussion on objectives must dwell on 'internal' factors in addition to the 'external' factors mentioned above. Such factors are the cognitive, attitudinal and behavioral achievements which should be expected by the participants in the learning system. Is literacy achieved as scheduled? The external and internal factors have all important implications for education and training requirements which must be considered.

3.8 An education system's demands for facilities and staff depend on content, size, structure, technology and other factors discussed below, and a final costing of a system cannot be made until all those factors are known. However, available resources have a decisive influence on the shape of an education system, and tentative resource parameters should be established at the beginning of the study and an awareness of costs and staff supply is necessary throughout the study. The interaction between the resources applied and the education development attained should be examined at each stage of the study.

3.9 The second step in the review comprises an analysis in depth of the formal and non-formal education and training content and structure. Such review must be comprehensive and cover the whole system and the way its different parts fit together. How does the content meet the objectives as they are defined or should be defined? What is the correlation between the content and the demands of society and labor market? Is the education and training sufficiently practically oriented? Can the graduates from universities and vocational institutions enter the labor market without unnecessary in-service training? Are possible problems of environment, over-population, tribalism, religious diversions, land distribution, law enforcement, tax collection and other factors mentioned in Para. 3.6 reflected in the education content? How is the 'educational profile' of the society compared with the school's educational profile? How do content and structure interact? Does the structure give sufficient opportunities to rural students, to women, to illiterate adults? Are the rural areas filled with incomplete primary schools which force the 9-10 year-olds to new schools in other villages if they want education beyond grades 2-3? Are non-formal education and training given the proper role in the structure? In particular, is training within industry and other enterprises supported by the government to achieve an optimal use of all resources? Does the structure provide for the use of staff and facilities during evenings, vacations? Does the structure create a burdensome boarding system? How significant are local movements such as the Harambee schools in Kenya? Are there non-economic explanations for important aspects of the education structure and content (preference for boarding schools, etc.)? In those cases where structure and content are irrelevant to the objectives of the education system, the ideal sector review should discuss alternative contents and structures which would better meet these objectives.

3.10 The third step is an analysis of the technology of the education system. The word 'technology' is used in its widest sense and includes learning methods, management and staffing. A discussion of learning methods would cover team and micro-teaching, programmed learning, pupils' involvement in practical activities, correspondence education, radio and TV education, traditional

classroom instruction, achievement evaluations, examinations and use of objective tests. A discussion on management would include centralized versus decentralized systems, the relation and cooperation between Ministries (Planning, Finance, Education, Labor, Rural Development, Health, etc.), between levels (Ministry of Education, universities, regional authorities, etc.). It would, furthermore, include information collection and dissemination, decision procedures and implementation, including possible participation of teachers and students, performance evaluation and supervision, use of systems analysis and modern data processing, program budgeting, accounting and auditing procedures, etc. The sufficiency and reliability of the education statistics (including the financial sections) should be given particular attention. Does the administrative setup support a system of 'rolling education reforms'? In staffing, the diversification of the staff, staff training and staff utilization are of particular interest. Is professional staff used for sub-professional tasks? Are there social or cultural reasons for the adoption or rejection of specific technologies in management, teaching, staffing? This question is particularly relevant when it comes to the introduction of new media. Also in this context, a discussion of alternative technologies to improve the system is important.

3.11 The fourth step in the analysis should deal with programming and physical planning of the education system. To what extent have education and training objectives, structure, curricula, technology, population distribution, urbanization, transportation means, overall economy and financial constraints been considered in the physical planning, location and construction of schools and of other education and training institutions? Is there a fair distribution of educational opportunities between urban and rural areas and between the different socio-economic strata and groups of the population? Does the system meet the quantitative demands of society and labor market? How do available education plans and projected enrolments and development of staff and physical facilities relate to economic plans, population estimates and future manpower needs? Is there already an overproduction of graduates in some education and training sector or a possible future oversupply? Is the current and future supply and distribution of staff, physical facilities and learning materials appropriate in quality and sufficient in quantity? Is the utilization of staff space and materials optimal? Are teaching staff and school facilities being used for any relevant non-educational activities? Are other personnel than teachers and other facilities than schools used for learning activities in countries with a shortage of conventional education opportunities? Are school designs systematically studied? Has the 'open classroom' concept been discussed? Is there a local production of learning materials, including textbooks? If not, should such production be stimulated? Are there any areas in programming and planning in which the relationship between politicians, administrators, planners and the school staff are particularly difficult?

3.12 While awareness of costs is essential during the consideration of the previous four steps, the fifth and important step of the review would be an analysis of the costs and the financing of the education system and its internal efficiency; the cost per unit of production. This analysis should

relate the costs of education to other expenditures of the society. Education represents both investment and consumption and in both respects should be exposed to intra- as well as to inter-sectorial priority reviews. The allocation of funds between education levels should be analyzed. The appropriateness of the higher education budget should be particularly scrutinized, as higher education in many countries receives a larger part of scarce education resources than can be justified. Staff salaries should be reviewed and the reasons for possible rigidities and anomalies explored. Teacher's salaries form 80-90 per cent of recurrent costs in education in many countries and ways to reduce that percentage might be discussed. Administrative practices in hiring staff which sometimes increase the education costs should also be studied. Funds for school maintenance and purchase of books and materials are often insufficient and not only the need but also the effective demand for such services and materials must therefore be explored. The review should discuss existing and other possible sources of education financing for capital and recurrent expenditures, such as self-help schemes, loan funds to students, in-plant training with special taxation of enterprises, etc. The cost analysis should give cost ranges, sensitivity to changes in inputs and, as far as possible, alternative costing solutions for improvements of the education system which may have been discussed previously in the review. The use of rate of return analysis for different types of education and training has been discussed in the Bank but is not recommended for use in this context. The financial analysis should project the probable growth in capital and recurrent educational expenditure arising from all aspects of the educational development program and compare this growth with estimated increases in GNP, government revenue and general expenditure. The discussion on internal efficiency would not only deal with dropout rates, the repeater problem and the reconstruction of the true student cohort but also explore the students' achievements at the different levels of the education ladder and their terminal performance. Such exploration should include attitudes and behaviors as well as cognitive skills and knowledges to the extent possible.

3.13 The above five stages of the review should lead to a sixth and final step, which is the proposal for an action program. If a sector mission has done a thorough job of analyzing the education system and the direction in which it is moving, it would be possible to examine alternative ways of remedying weaknesses in the system, to propose a strategy for future development, and to recommend specific policies for all levels of education. The program should be phased to the country's overall development program, have a well-defined time pattern, include costing and give priorities. Financial and staffing constraints should be indicated. The action program should be formulated and organized to permit the full use of available local talents, and the ultimate goals of the program should be to create an education system which, while promoting economic and social development, can be fully supported and further developed by the country's own manpower and capital resources. Technical assistance should not be proposed as an easy way out of a staffing problem. It should only be proposed when absolutely necessary for the program execution and the institution building. Whenever feasible, alternative ways of achieving the goals should be stated.

3.14 The program should include a list of identified priority projects, which might be financed by the World Bank Group or any other agency. Annex I contains examples of possible projects which may cover any part of the education and training sector. It is important that such projects be well justified and limited to what is necessary to achieve the development objectives.

3.15 The action program should also define in detail the work that would have to be done and studies to be undertaken prior to the implementation of projects. The sector review would thus contain a program of pre-investment studies. Pre-investment studies would be an aid in the design and preparation of projects, and in many cases would constitute a prerequisite to the implementation of a project. They would form an important tool in reforming the education systems by recommending means to increase external productivity, quality and internal efficiency. These means would then be reflected in the actual projects. A list of possible types of pre-investment studies is given in Annex II.

4. CRITERIA FOR PRE-INVESTMENT STUDY PROGRAMS IN EDUCATION

4.1 The identification of pre-investment studies is a delicate task because errors or omissions could have serious consequences for the overall development as well as for the execution of projects. When proposed education projects would depend on previous or current studies, e.g., manpower, curriculum research, learning materials production, new media, etc., the quality and coverage of those studies should be carefully examined. When projects would depend on proposed new studies, it must be assured that all relevant topics will be covered. This coverage is important, as pre-investment studies may constitute starting points for a continuing development in curricula, education cost analysis, school planning, etc. The task of identification of a pre-investment study should include estimates of its requirements for technical assistance and counterpart training, but not any possible sources of such technical assistance or training.

4.2 The education and training system in many developing countries is in such a shape that the temptation exists to propose a lengthy catalogue of studies covering the majority of topics listed in Annex II. Implementation of such a lengthy catalogue would in most cases be beyond most countries' capacity to administer and to absorb, and would delay development as well as investment. It is important, therefore, that the sector mission should exercise restraint in proposing pre-investment studies. In each case it should be clearly indicated whether action on a specific project would be dependent on execution of a proposed pre-investment study.

4.3 In a few cases education sector knowledge on a particular country may be so good that a pre-investment study program can be produced as a desk study rather than through a field visit. In such cases, it should be remembered that the Bank Group's approach to education has only recently broadened. Previous Bank and Unesco missions might have reviewed the education systems from a relatively narrow angle.

4.4 Pre-investment studies may be recommended with or without Bank Group project financing. If project financing is foreseen, the financing of the pre-investment study might be achieved in various ways, either by the Bank Group or by another agency. Whatever arrangement is recommended, the decisive factors should be the proposed study's contribution to the accelerating and improving the preparation of projects and to the execution of investments.

4.5 An education sector review mission would normally have neither the time nor the expert knowledge to design the proposed pre-investment studies in detail. Although the scope of such studies must be defined in broad terms, proposals should be sufficiently precise to enable time and cost estimates to be made. The objectives of each study should be defined clearly. Most education pre-investment studies are expected to initiate action and induce change. Concrete programs for implementation of proposed reforms must, therefore, constitute an important part of the studies, and this should be reflected in the stated objectives. If several studies are proposed, they should be ranked in order of priority or arranged in a logical time sequence.

5. IMPLEMENTATION OF EDUCATION SECTOR REVIEWS

5.1 An education sector review will include sector analysis, pre-investment study program and project identification. Project identification must not be relegated to the third place of importance; it is intended that the projects thus identified will be better conceived and, by the time they are financed, fully backed by the requisite pre-investment studies.

5.2 An education sector review as described in previous paragraphs will apply a comprehensive approach to a country's total education and training system. The analysis should show changes and trends in the system and would lead to an action program. Such an approach is more demanding than a traditional education survey and may require bigger missions and longer duration. Proper preparation and implementation of a sector review will, however, keep staff requirements and time within reasonable limits. Although a new way of treatment of available data would be introduced, collection of more information than has previously been required by education missions would not necessarily be necessary.

5.3 For missions composed of expatriates (compare Para. 3.5), a saving in time and manpower for data collection should, in fact, be possible as national authorities and international organizations working in the country, such as UNDP and Unesco country representatives, might be requested to assemble and provide specific information before the start of the review. A review of already existing studies and programs of recent date covering one or more education sub-sectors might also save mission time and manpower and provide useful information for the mission's own proposal. Such review may be undertaken in the Bank's headquarters before the mission departure by a mission member who may have received this job as a special assignment. Close cooperation between the

Bank Group and other agencies should create a uniform approach to education and training and increase the exchange of relevant information, thereby reducing the workload of a sector mission. When possible, deployment of mission members in the field should be phased so as to maximize the continuous flow of information.

5.4 As mentioned previously, an education sector review mission composed of expatriates would not be expected to conceive an entirely new education system. Nor would it be able to produce an education development plan during the time at its disposal. However, the action program would contain concrete proposals which would either support an acceptable existing development plan and assist in its execution, or suggest alternative strategies for future development and ways to implement those strategies. It should in both cases speed up the regular planning process within the country and aid national planning agencies.

6. COMPOSITION AND SCHEDULING OF EDUCATION SECTOR REVIEW MISSIONS

6.1 The new broad approach to education and training should be reflected in the composition of the education sector missions. Certain areas of study relate to the whole sector and require different types of expertise. They are, however, interrelated and should be handled with an integrated approach. These are:

(a) The social, environmental and cultural factors of the country;

(b) The demography of the country;

(c) The external productivity, the economic factors, and the constraints of the sector;

(d) The internal efficiency of the sector;

(e) The planning of the sector.

In addition, the evaluation of the following three subject areas requires special knowledge:

(f) General education - i.e., those elements of education which are essential to the defined level of training regardless of the environment;

(g) Urban development - i.e., all those elements in addition to the general education which are peculiar to the urban environment and living;

(h) Rural development - i.e., all those elements in addition to the general education which are peculiar to the rural environment and living.

How these eight areas might be covered by expert staff would be determined in each particular case. A typical sector review mission might include a sociologist/demographer, an economist/human resources expert, a general educator/planner, a specialist in industry and commerce, and an agriculturist. Other specialists, including experts on new learning media, materials production, adult education, health education, etc. would be provided as necessary. However, the aim should

be to ensure that each mission would be fully capable of assessing the formal and non-formal education and training system against a background of the country's overall development and its demands on other sectors.

6.2 The actual size and composition of a full sector mission and the time in the field would be decided in each specific case, although a team of 6-8 members - expatriates and/or nationals - should be appropriate in most countries. It may be necessary to spend 1-3 months in the field and 3-5 months for report writing.

Annex 1

SOME POSSIBLE AREAS FOR BANK GROUP PROJECTS

1. Research and experimentation projects with new curricula and learning methods.
2. Assistance in long-range educational planning, curricula design, school management and staff training.
3. Development and introduction of instructional television, school radio, programmed learning, correspondence education and other technologies.
4. Development and production of learning materials including textbooks.
5. Establishment of education development centers.
6. Pilot programs and schools in primary education.
7. Functional literacy programs.
8. Construction and equipment of secondary and post-secondary institutions in general, industrial, agricultural, commercial, business management, social and para-medical education and training.
9. Construction and equipment of university faculties of science, engineering, agriculture, veterinary medicine, education, business and business management, and social science, and other clearly development oriented subjects.
10. Technical assistance for the implementation of proposed subjects.

Annex II

SOME POSSIBLE AREAS FOR PRE-INVESTMENT STUDIES

1. Human Resources Development
   - 1.1 Manpower studies.
   - 1.2 Rate of return studies.
   - 1.3 Employment of school leavers.
   - 1.4 Tracer system of school leavers.
2. Education Aims, Contents and Structure
   - 2.1 Study on education structure.
   - 2.2 Development of curricula in specific areas or levels of education and training; practical subjects and courses; rural or urban orientation; literacy programs; adult education.
   - 2.3 Study of performance and of examination and promotion systems, evaluation methods.
3. Education Methods and Research
   - 3.1 Development of plans for use of new media or new technologies (radio, TV, programmed learning, team teaching, correspondence education).
   - 3.2 Development of education development centers.
   - 3.3 Research on education contents and learning methods.
4. Financing of the Education System
   - 4.1 Cost analysis (the whole or a part of the system).
   - 4.2 Cost effectiveness.
   - 4.3 Study of education financing (the whole or a part of the system).
5. Physical Planning and Programming of the Education System
   - 5.1 Survey of existing school facilities.
   - 5.2 Study of school building design, building materials.

5.3 Physical planning and location of new schools or of other education and training institutions and courses for the whole system or for specific areas considering:

(a) Required enrolmment to meet manpower demands,
(b) Structure,
(c) Curricula,
(d) Learning methods,
(e) Staff supply,
(f) Population distribution, with due consideration to underprivileged areas and groups,
(g) Tribal areas,
(h) Urbanization rates,
(i) Transportation means,
(j) Boarding frequency,
(k) Economic school size (Pre-primary level, primary level, secondary level, higher education level, adult training, literacy).

5.4 Development of plans for local production of learning materials (including textbooks).

6. Administration and Staffing of the Education Systems

6.1 Educational management (central, regional, local, information collection and dissemination, education statistics, decision procedures and implementation, evaluation, supervision, use of systems analysis, network analysis, data processing, planning, program budgeting, accounting, auditing).

6.2 Development of staff and teacher training programs - supply, demand.

6.3 Development of counterpart programs.

6.4 Development of technical assistance programs.

6.5 Advisory committees for education, student participation in administration, exchange of information between representatives of industry, business, agriculture, health and the education system.

Annex III

CHECK LIST FOR EDUCATION SECTOR REVIEWS

1. An education sector review must rest upon a large body of information on the education system, its relation to the society (external productivity) and its internal efficiency. Such information should not be a static description but a dynamic analysis showing flows, changes and trends with great consideration to the time factor. The possible opportunities to compare actual achievements with goals and targets as established in development plans should be used. The implementation of educational changes should be observed and studies of education programs and reforms which have failed may be revealing. The interactions between the labor market and the education system, and between the overall economy of the country and the education expenditures are particularly important.

2. The information should comprise:

2.1 Human Resources

The country's present resources of trained manpower: employment statistics by economic sector and by occupation and educational level; use of expatriate high-level manpower. Utilization of existing manpower resources: unemployment, underemployment and emigration or immigration of trained manpower. Employment of school leavers. Evidence of current shortages by economic sector and by occupation. Wage differentials among occupations. The educational profile of the labor market. Social attitudes toward employment and use of female manpower. Recent trends in employment, in migration of manpower between rural and urban areas, in emigration. Comparison between actual employments and those originally projected for the period. Prospective requirements of manpower by sector of the economy, by occupation and by area, if possible during the next ten years. Requirements resulting from projected economic expansion, from repatriation of expatriate staff and from normal replacement.

2.2 The Education and Training System

(a) Current structure of the educational system. Recent changes in structure, in length of schooling, in entrance age, in school year, in school and class sizes. Prospective reforms.

(b) Enrolments and outputs in all types of universities, schools and training centers, by grade and sex and age, current and, if available, for the past five years. The educational pyramid. Data on attrition and repetition rates and levels at which they occur. Functional literacy programs and other types of adult training. Numbers in training and education overseas. Significant contributions to manpower training made by other ministries, industry, the military forces, organized apprenticeship schemes, community development schemes, etc. in various kinds of formal and non-formal activities. Recent changes in composition of student body; in racial, tribal and social distribution, in ratio of male:female enrolment, in urban:rural enrolment, in technical:academic enrolment, in science:arts enrolment, in attrition and repetition rates, in number of applicants, number of places, in index of opportunities between different levels of education and between different geographical areas, in ratio day students:boarders, ratio private:public school enrolment. Prospective enrolments and outputs in existing and projected institutions, if possible during the next ten years. Correlation between prospective outputs and prospective manpower requirements as described in Para. 2.1, including an estimate of school and university leavers not entering the labor market. Desirable outputs to meet requirements.

(c) Analysis of educational and training objectives, curricula and syllabi. Instruction hours per week and year. Languages of instruction. Promotion and examination systems and results. Educational achievement at different levels. Curriculum research and experimentation. Careers guidance. Aptitude tests. Correlation between education program and the manpower program; liaison between the vocational education program and industry and other employers. Correlation between education programs and social, environmental and cultural demands of the society. Recent trends and changes in objectives, curricula, syllabi and achievements of students. Planned reforms and desirable reforms.

(d) Educational Technology

(i) Learning methods such as classroom instruction, team teaching, school radio and ITV, programmed learning, computer assisted instruction, subject integration, correspondence education. Recent trends and reception of new methods.

(ii) Educational management and levels of education authority, related to one another (local, regional, national, private). Information collection and dissemination, quality of education statistics, decision making, implementation and supervision of decisions. Use of systems and network analysis, data processing and up-to-date accounting methods. Participation of laymen, students and staff in the administration; for counselling and for decision making. Student unrest and its causes. Recent changes in the management systems. Has the process of curriculum reform been built into the system?

(iii) Staffing: training, utilization and qualification of staff. Staffing structure. Turnover. Salaries compared with free market. Social standing of the teaching profession. Class contact hours per week for teachers. Student:teacher ratio. Recent trends in staff qualification, in nationalization of staff, in student:teacher ratio. Use of technicians to assist administrative and teaching staff.

(iv) Planned changes and desirable changes in technology.

(e) Educational Planning

(i) The planning and its relation to the overall development planning. Objectives, methods and organization. To what extent have manpower demand, educational and training objectives, structure, curricula, technology, population distribution, urban and rural development, transportation means, overall economy and financial and staffing constraints been reflected in the planning? Recent changes in planning methods. Planned changes and desirable changes in planning, objectives, methods and organization.

(ii) The physical planning, location and programming of education and training facilities. Regional and provincial distribution, urban, slum and rural schools. Design, construction, production, standard and maintenance of physical facilities and learning materials. Supply, demand, utilization of physical facilities and learning materials. School building research. Planning methods. Recent changes in planning methods and school design. Planned changes. Planned development of educational and training facilities. Desirable development of educational and training facilities during the next ten years, considering planned education reforms and/or expansions, indicating proposed changes in structure and demand for physical facilities. Desirable production of learning materials.

(iii) Staff development. Current supply and utilization of administrative and teaching staff. Projected demand, supply, training and nationalization schemes. Desirable supply, training and nationalization schemes to meet expected demand for staff.

2.3 Education Financing

Present, past, and estimated future requirements of the educational and training system corresponding as closely as possible to categories and annual breakdown as defined in preceding paragraphs. The analysis would include capital costs, recurrent costs and sources of funds, present and future. The percentage of total public expenditure represented by public expenditure for education, as well as the percentage of GDP devoted to education should be given. This section of the report is very important and should include a solid cost analysis and, if possible, discuss the internal efficiency of the system in terms of cost per student and cost per graduate. Staff costs and effective demand for learning materials should be explored. The maintenance policy should be discussed. Past cost trends should be examined. Prospective financial requirements should be discussed, considering alternative education developments as may have been previously described, and with alternative financing methods wherever possible. Cost estimates should give ranges and inform on the sensitivity to changes in inputs. Foreign assistance in the past as well as expected in

the future should be reported if possible. As it was emphasized in Para. 3.11, the probable economical and financial constraints to a future development of the education system should be explored in depth. Such constraints are essential and decide in the final analysis on possible expansions and improvements of the system. In most cases the Bank would possess a considerable amount of information on a country's economic and financial situation which could be made available to an education sector mission and assist it in its evaluation of the education system.

3. The review and analysis in-depth of the education system would lead either to an endorsement of existing education development plans or to a proposal for an alternative strategy for education development. In both cases the review would suggest priority projects and a pre-investment study program.

4. Project identification procedures and education projects are discussed elsewhere but the sector mission should feel free to suggest projects in any area of education and training as suggested in Annex I.

5. Possible areas for pre-investment studies are listed in Annex II. The pre-investment study program would also list studies which may be either project related or sector related. They should in every case be well defined and reasonable in scope and size. The proposal should include an inventory and appraisal of current and completed studies of the education sector, giving data on the status of each. For each proposed new study, objectives, scope, timing, staffing and cost estimates should be provided. When scheduling a pre-investment study consideration should be paid to the scheduling of the investment.

Document No. 7

SWEDISH CRITERIA FOR PROGRAMME AND PROJECT SUPPORT

by The Swedish International Development Authority

BACKGROUND

The guiding principle of Swedish international development assistance is the recognition that planning, implemention, and evaluation of development programmes and projects is primarily the concern and responsibility of the developing country itself. Swedish assistance is country oriented inasmuch as it proceeds from the needs, objectives and priorities of the recipient country. Swedish contributions are based on specific requests for development assistance submitted through the established official channel. Such requests should ideally be accompanied by descriptions in some detail of the programme or project for which Swedish support is requested. The description should preferably contain clear statements of main and subsidiary objectives as well as production targets for the various elements constituting the programme or project. As a rule Swedish resources are contributed in the form of credits and grants comprising funds, goods, consultants and staff.

The volume and objectives of Swedish international development assistance are established by the Swedish Parliament and Government. Directives are given in the annual budgets and elaborated in various policy statements. On the basis of these directives, the Swedish International Development Authority, SIDA, prepares and implements the Swedish programme of development assistance. In its work SIDA co-operates with the Ministry of Foreign Affairs, to which it is administratively related.

For Sweden's principal development partners, SIDA's long term planning of bilateral Swedish development co-operation takes the form of special assistance programmes, so called country programmes, based on economic, social and political conditions in the individual countries as expressed in their development plans and other policy documents. (For other countries SIDA's planning proceeds from existing motives in each single case).

The country programme is worked out in close collaboration between the recipient Government, SIDA, the Swedish Embassy and SIDA's local Development Assistance Office. Other bilateral and multilateral donors are consulted in order to co-ordinate the Swedish programme to those of other development partners. Regular Swedish planning missions are a normal feature in this process.

The choice of sectors to be supported is guided by priorities established by the developing country. Reference is also made to Sweden's own priorities and potentials of providing the required type of assistance. Specific programmes and projects to be supported are selected within the framework of the country programme which is reviewed periodically.

ADMINISTRATIVE PROCEDURE

Requests for development assistance are dealt with and assessed by SIDA. Final proposals for Swedish support to development programmes and projects shall be presented to the Director General, the Board of Directors of SIDA, and later, in applicable cases, to the Swedish Government for decision. The proposal takes the form of a memorandum prepared by the SIDA staff describing the programme or project to be supported. A positive decision requires that a number of criteria have been satisfied.

The following is a summary of the content of a support memorandum.

THE SECTOR

A brief description of the sector to which the programme/project belongs. The importance of the sector in the country's economy and its priority in the national development plan. A brief description of subsectors and relations to other sectors. Relevant historical, political, economic and social information. Prevailing constraints and potentials for development.

The sector's place in the national administrative system. Responsible organization and institutions. Relevant legislation. Administration at regional and local levels.

Infrastructural assets, shortcomings and needs. Manpower resources and planning. Existing and planned education. Proportion of expatriate staff at medium and top levels. Research situation.

Existence of pilot projects. Activities of other donors within the sector. Mechanism for local co-ordination of assistance.

Previous Swedish experience within the sector.

THE PROGRAMME OR PROJECT

Previous Experiences

Is the proposed project or programme a continuation of an on-going activity? If so, describe as precisely as possible to what extent earlier plans have been implemented and stated objectives achieved. Analyse the deviations between plan and reality.

For projects and programmes without a past history examine what experiences from similar activities are relevant to the planning.

NEEDS AND OBJECTIVES

Analysis of needs

Which needs is the programme or project meant to satisfy? Are these needs discussed in the national development plan? In connection with manpower planning? Quote authoritative comments.

To what extent is the programme or project expected to satisfy the needs in question? Are further measures required now or later? Should this be investigated now?

Definition of objectives

Definition of objectives should clearly and concisely show what and how much is to be achieved for whom, where, when and how.

Degree of achievement should preferably be measurable, i.e. be possible to express in figures. In cases where this is not possible, observations of effects should make it possible to describe what has happened in relation to stated objectives, for example that more or less of something exists as a result of the change that has taken place.

1. Main objective

Which is the main objective? Which priority does it have in the national plan? Which are the target groups? Age, income, education, occupation etc.?

2. Subsidiary objectives

List the changes which are intended to achieve the main objective. The changes should if possible be expressed as subsidiary objectives with intended quantities and/or qualities defined.

DESIGN

Describe the programme or project with reference to the following.

- Main activities (teacher training, primary education, construction of secondary schools, curriculum development etc.).
- Activities and production process to be organized and implemented in order to achieve stated production targets.
- Time schedule. Relevant illustrations including network of activities.

APPRAISAL

Summarize the appraisal with regard to each of the following aspects:

- Socio-economic aspects;
- Sector techniques in relevant field of activity;
- Transfer of knowledge;
- Construction and engineering;
- Organization and administration;
- Costs, timing, and financing;
- Legal aspects.

List the intended positive and potential, or unavoidable, negative effects with reference to stated objectives and the aspects appraised above, particularly the socio-economic aspects.

Examples of guiding questions:

Does the programme or project have direct effects (positive and/or negative) with regard to standard of living (food, clothing, housing etc.)? For whom? When? Indirect effects?

Will the programme or project lead to increased government or private resources? Is there any indication of how they will be distributed?

Can the programme or project be expected to generate savings? Foreign exchange? For whom? When?

Which negative effects will be caused and/or avoided if the programme or project is implemented?

Do the goods produced have a market value? How has this been taken into account in the socio-economic appraisal? Have the internal economic and financial returns been computed?

What are the expected effects on employment? On the environment? On population?

Is the programme or project a precondition for other programmes or projects with the same or similar main objectives? (Road projects and power projects are examples of such preconditions).

Will the programme or project contribute to knowledge, skills and attitudes favourable for continued development?

Do the expected positive effects outweigh the negative? Do the expected benefits justify the costs?

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Appraisal is something done by a visiting SIDA mission appointed for the purpose. In such cases the mission works in consultation with the recipient Government, the Swedish Embassy and SIDA's Development Assistance Office. Before returning to Sweden, the mission in a meeting attended by interested parties reports verbally about its findings and tentative conclusions. On this occasion a written summary statement by the appraisal mission may be handed over to the Government departments concerned in order to facilitate further co-operation. Such a statement does not, however, in any way prejudge the view or decisions of SIDA or the Swedish Government.

ALTERNATIVES

Which alternatives to achieve stated objectives have been considered but rejected? Why?

EVALUATION

How is progress towards the stated objectives to be followed?

Summarize the established plan for evaluation both as regards periodic reports and special studies focusing on plan implementation.

Examples of guiding questions:

Which are the objectives to be evaluated? Which institution or experts will make the evaluation? During what period of time? Which data must be collected before the evaluation can start?

Should special studies be carried out regarding potential negative effects? Which? How? When?

Can the evaluation be co-ordinated with other studies within the same field of activity?

How is data collecting and reporting organized for built-in evaluation? Which production results will be included in the reporting? Which results will be followed up in some other way? How?

THE SWEDISH SUPPORT

In this section the recommended Swedish support is summarized.

Reasons for the recommendation are offered with reference to the needs and priorities of the recipient country as well as Swedish development assistance policy and available Swedish resources.

Essential problems and risks are assessed with regard to objectives, time schedule, cost and financing.

CONCLUDING REMARKS

It should be pointed out in conclusion that the criteria and methods outlined above are meant to be adopted in a flexible and pragmatic manner.

Document No. 8

PROBLEMS OF EVALUATION OF UNIVERSITY DEVELOPMENT CO-OPERATION PROJECTS

by A. Kater and L. F. B. Dubbeldam

1. Introduction

In this paper an attempt will be made to describe the problems of evaluation that are faced by Dutch Universities in their aid activities insofar as such activities are carried out under the Netherlands Programme for University Projects of Development Co-operation.

The programme is still very new. It is only since 1970 that the Dutch national budget has included an item for a special programme for University projects. Previously, university activities had been financed under the general technical-aid programme of the Government or under other programmes. As the Minister for Development Aid allowed the programme and its projects to have a distinct 'university character' different from other government-financed programmes, this meant that objectives, selection, procedures, evaluation, etc., were to be different from those applied in other programmes. New ways had to be found.

The first major problem encountered arises from the fact that a number of different bodies and individuals are concerned with the programme, namely

(a) The Ministry of Development Aid - the financing agency - which supposedly has developed its own routine of project evaluation in other programmes.

(b) The Netherlands Universities Foundation for International Co-operation (NUFFIC) to which the administration, supervision and guidance of the Universities' programme has been entrusted.

(c) The Universities, with their individual differences in academic potential and interests, attitudes toward developmental and international problems, organizational abilities, etc., each composed of bodies and individuals with their specific characteristics.

(d) The Ministry of Education and Sciences.

(e) The Ministry of Agriculture and Fisheries.

The parties concerned hold different views on the aims of the University programme. As differences of opinion on objectives have their consequences with regard to the priorities, selection-criteria, evaluation, etc., we should mention the five most important views:

(a) The programme should aim at using the Dutch academic know-how in the Dutch technical assistance - a governmental point of view.

(b) The programme should enable the Dutch universities to fulfil their duties towards the Third World, as formulated by the 'Utrecht Conference 1967' of the Dutch universities.

(c) The programme should enable the universities of the Netherlands to materialise their solidarity with the universities in the developing countries.

(d) The programme should provide the Dutch universities with the opportunity to carry out scientific research that has too much a pioneering nature to be included yet in the official policy towards research on the development problems. Views (b) and (d) express the ideas commonly shared by the universities.

(e) Finally it is believed that the responsibility for technical aid, including aid from universities, should rest with international organizations and that, as long as such multilateralisation has not been effectuated, university aid should remain under the direct responsibility of the Minister of Technical Aid. This view is held by the Office of International Relations of one of the Dutch universities.

Furthermore, practice has shown that many projects are the result of individual contacts between professors, in the Netherlands and the developing countries concerned, who saw an opportunity to carry out existing plans - if necessary with some adaptations - under the Universities' programme. If we may add here that also the participants of the projects have their own objectives and attitudes towards development problems and the projects they are engaged in, we believe that we have sufficiently indicated that there exists a complex and sometimes confusing multiplicity of objectives, which makes it very difficult to evaluate the programme in any phase. So far there seems to have been hardly any need for detailed evaluation techniques and procedures, as the sum total of the projects applying for financing under the programme has been in balance with the amount of money allocated. However, at present the amount needed for potential projects has surpassed the money available (for 1972 about Fls. 6 million). In addition, the Netherlands find themselves in a period of retrenchment of Government expenditure. For that reason the need is felt very strongly now to come to a more concrete agreement on the objectives of the programme and on a revaluation of procedures, selection-criteria, outlines for project-strategy, evaluation of the needs of the countries concerned, and evaluation of project implementation and of results.

2. Evaluation of the educational policy

Policy-makers are aware that an aid project makes sense only if a distinct and well-defined need exists in the country to receive aid. The Government's technical aid programmes and similarly the Universities' programme demand that proof be given that the proposed project will contribute to the socio-economic development of the receiving country. In general, the financing agency is satisfied with references to a plan for more than one year, a survey of an international commission and/or a letter in which the Government concerned declares that the project is welcome and fits in with the Government's own plans.

Although we have no exact data to prove it, we believe that for a long time educational projects have been financed on the basis of the assumption that education in itself is capable of promoting socio-economic development. It was believed that educational policies that stimulated the growth of the educational system should be supported without investigating the consequences for the other sectors of the social situation. Most educational aid was channelled through the activities of voluntary agencies (usually missions, sometimes other institutes, like universities) or international organizations. Within certain limits, the fields of activities and the priorities proposed by them were accepted. As far as we know no sectoral or general evaluation of the educational policy in the countries that received aid has been undertaken by a Dutch aid-financing organization.

Often the actual evaluation of the needs of the country to receive aid is left in the hands of the Dutch partner in the planned co-operation, who is supposed to explain in the project-outline the needs to be met. Usually such an explanation is then presented as a letter by the institute to receive aid. This letter also serves as a 'request by the other party'. Sometimes an evaluation of the educational policy and situation is available, either specifically prepared for a certain project or for other purposes. Practice in other Government programmes includes that experts on education in a certain country, whenever available, are asked for advice on an application in the light of their experiences in and knowledge of the country and subject concerned. In general the Government demands that projects should contribute to the socio-economic development of a country. The question, however, is whether, how and to what extent education contributes to socio-economic development. And then a satisfactory answer leading to applicable criteria for selection of priorities is very difficult to find. For one thing: who is to judge what is right for the developing country concerned? The donor or the country itself?

Another matter is that the assumption that education per se would promote development has gradually become subject to critical review in publications of the past few years. Consequently, mere transfer of knowledge to as many people as possible is no longer the best thing one can think of. Phenomena like the increase of the number of unemployed school-leavers, for instance, have

made some policy-makers reconsider their policies. In this respect the universities have a distinct task. They could, in addition to the transfer of knowledge, whenever asked for, contribute to more critical and creative thinking among the university students and staff of developing countries. For the problem does not seem to be that the university staff and students in the developing countries lack intellectual potentialities, but that the socio-economic circumstances and the prevailing educational systems have often failed to develop in them scientifically inquisitive thinking. Where such a situation exists, the Netherlands' Universities could contribute not only by teaching subject-matter, but also by stimulating an awareness of the problems, critical analysis, aptness in problem solving and ability to use the tools or resources available.

3. The machinery of evaluation of educational policy

Except when it so happens that a sound evaluation of the educational policy and situation in a developing country is available, neither the Government nor the Universities have the organizational machinery to produce a thorough evaluation of any country in a reasonably short time. In the Netherlands there are quite a few institutes that are regionally specialized (like the Africa-Study Centre at Leiden, or the Documentation Centre for Latin-America at Amsterdam) or subject-wise specialized (Centre for the Study of Education in Changing Societies at The Hague). However, rarely do these institutes have adequate resources to keep themselves up-to-date about all the countries concerned, nor do they have sufficient staff and funds to survey the educational policy of a number of countries sufficiently thoroughly and quickly.

Government representatives abroad generally are not equipped for this aspect of foreign relations: often their contacts with the Universities in the country, and with the Ministries of Education and Community Development are infrequent. They are by tradition better equipped for external affairs (international politics, trade, financing, etc.) than internal affairs like educational or developmental policy. Officials of the Dutch Foreign Service are, as a matter of principle, transferred frequently, so that they have little opportunity to familiarise themselves with the developmental problems of a particular country. So the Government foreign representatives cannot be expected to be a source of adequate information on educational policies.

Voices are heard, however, pleading for the appointment in the developing countries of special representatives to take care of the interests of universities (and other - educational - aid-giving agencies) in affairs of development co-operation. This, however, seems only feasible if there are sufficient projects in the country (or region) or if the task could be combined fruitfully with other work. The question remains what the costs of such a representative may be with regard to the total volume of the projects in the country (or area) to defend the appointment.

This leads to the issue of concentration. A few years ago the Dutch Government decided to limit most of the Dutch bilateral assistance to a certain number of countries. The Universities' programme is not limited to the same countries. Yet, in order that the activities of the universities may be better prepared, implemented and evaluated some people plead for a concentration policy in the University programme as well: formation of consortia of universities on the Dutch side, and/or concentration on specific countries or even concentration on a few universities in the developing countries (trusting that the latter, in their turn, may stimulate the other universities in their country). Some developing countries prefer such programmes: Indonesia would like to see priority to be given to aid to one of its five leading universities, while a number of countries have founded boards that have to judge whether the subjects of proposed research projects are among the priorities of the country.

4. Priorities and selection of projects

As mentioned above, the ambiguities in the objectives of the programme make it difficult to reach a unanimous agreement on the criteria for deciding which projects may be admitted to the programme, and to what subject, country, etc., priority should be given.

So far the issue of priorities has not been urgent. To match the funds available the number of projects could easily be reduced on the basis of such criteria as: is the project likely to contribute to the socio-economic development of the country? Does the subject fit in with the needs of the partner? Does the project fulfil a set of general (administrative and preparatory) requirements set in advance to projects that may be financed under the programme? What is partner's own contribution to the enterprise? etc.

However, the discussion on the criteria for selection and priorities has been reopened. The first step to be taken now is to try and reformulate the objectives of the programme in such a way that the number of potential projects will be automatically reduced from the outset; simultaneously it is hoped that some of the criteria to be set may serve as guidelines for the preparation of new projects. Vital questions have to be discussed, such as:

(a) Should concentration be pursued? If so, should the required 'contribution to socio-economic development' be maintained or is it possible to compose a 'packet' of projects, including some academic subjects which are highly valued by the authorities in the developing countries but which do not visibly contribute to socio-economic development (e.g. law-reform, history, linguistics, etc.)? On the whole, which are to be preferred: projects that have sprouted from personal professional (and professorial) contacts and are implemented - somewhat individually - with commonsense, with feeling for the problems and with dedication, or projects that are part of concentrations or are fully integrated in and planned by universities (or faculties)?

(b) Would it be possible and desirable to give priority to projects that - e.g. as parts of a 'packet' - may lead to continued co-operation to the benefit of both partners after the aid-phase has been completed, rather than to co-operation projects that end at the moment of 'mission accomplished'.

(c) What kind of 'pure research' should be financed by this programme, and what should be referred to other agencies? Or should research be accepted only if a training element (techniques, methodology, evaluation of facts, etc.) is included?

(d) Should projects that are part of international co-operation on the 'donor' side be preferred to 'national' projects?

(e) How many criteria for priorities and selection and which of them should be formulated? Finally, the more requirements are set for projects, the more elaborate and refined the evaluation system should be.

At present applications for financing under the programme can be submitted to NUFFIC once a year. After a first selection on administrative and procedural grounds, the proposals are discussed by panels, composed of people who are considered to be experts both on the subject matter and on development problems. Finally, the approved projects are recommended by NUFFIC to the Minister concerned, who, so far, has accepted the advice given and financed the projects.

5. Control of preparation of projects

At the moment neither NUFFIC nor the Government have adequate control procedures for the implementation of projects. After the selection as described above has taken place and advice has been received from the officials concerned in the developing countries and after an incidental check-up on the spot, the project can go ahead. Again, it is a point of discussion whether concentration and local representation may make a more satisfactory control system possible.

There is also the question of how much time and money should or may be allocated to evaluative (maintenance) research. Last year for instance the Government asked the Centre for the Study of Education in Changing Societies (CESO) for advice on an application for an additional subsidy for an extension to be built to a primary school in an African country. The way the applicant defended his case, the way the school was described (selection procedure at entrance, teaching programme, contact with the environment, staff recruitment, guidance of school-leavers, etc.) could not but lead to a most positive advice. Should not such a case be thoroughly investigated, either to prove the applicant has written 'empty words' or to observe, describe and publish a promising example?

The same line of thought is pursued in the ideas on and plans for developing countrywise central documentation, emphasizing subjects like education, science and technology, planning and administration, all in view of development. The Royal Institute for Linguistics and Anthropology (Leiden) already has a resident representative for documentation purposes in Indonesia.

6. Evaluation of results

The Universities' programme requires that those responsible for its projects report regularly on the progress made. Summaries of these reports are published in a Progress Report of the programme as a whole and sent to the Minister. However, the question has been raised whether this way of reporting, supplemented by incidental visits of officials to projects, will prove to be sufficient to serve the purposes of evaluation. For evaluation should lead to a set of results: firstly, it is a means to check whether the project has been implemented according to its objectives; secondly, the information obtained is supposed to serve as a feed-back for the improvement of future projects and for the refinement of the objectives, the criteria and the organization of the programme as a whole.

For this purpose, NUFFIC has requested CESO to make the necessary studies of universities' development co-operation and to contribute to the reformulation of objectives, criteria and evaluation procedures. In 1971 a planned observation on the spot (with guidance) of a then newly starting project had to be postponed because of staff and budgetary restrictions. Yet we believe that a continuous observation of an actual case of co-operation is the best possible method of evaluating the impact of a project from a social, economic and especially pedagogical point of view. For no project is carried out in isolation. Staff of an institute that is to receive aid 'learn' from the project, but also from many other sources. They may internally select and re-integrate elements of previous experiences with those from the project concerned and from conferences, visits, talks, magazines, etc. Mere registration and comparison of the pre-project and post-project situation may not give sufficient data about the impact of one's own activities. A question is how many projects can and must be 'observed' in this way in order to draw somewhat more generally valid conclusions as to university co-operation for development and in order to develop a set of new and efficient techniques of evaluation for future use. It would also be instructive to learn to what extent the broader programme objectives and the more narrow project aims match in reality; one can think of situations where circumstances enforce a change in one of them, without necessarily leading to a premature end of the activities.

For its plans CESO is considering finding local partners to co-operate with, in areas where many Dutch educational (university) projects are being executed. Such co-operation would be a base for CESO's observations of projects of university co-operation.

7. Conclusions

Looking back one gets the impression that much of the Dutch educational aid of the sixties has been given in a somewhat opportunistic way (which does not imply that this has yielded poor results). The Universities' Programme of Development Co-operation is, very carefully, trying to develop an evaluation system that may cover all phases of the projects. As no new projects will be approved for 1973 as a result of budgetary restrictions, it has some time available to reconsider its policy, and it hopes that by the time the applications for the 1974 projects are submitted, it will have more clear objectives, criteria and evaluation routines at its disposal.

Document No. 9

THE ESFAHAN WORK-ORIENTED ADULT LITERACY PILOT PROJECT : A COMMENTARY ON EVALUATION

by J. Ryan

1. Preface

As indicated in the title, this paper is a commentary on the evaluation of the Esfahan Work-Oriented Adult Literacy Pilot Project 1/. It is based primarily upon the following three papers prepared for the 'Seminar on the planning of out-of-school education' held at the IIEP during December 1971:

M. Bazany - 'Evaluating an experimental functional literacy project : the Esfahan experience' 2/.

C. Bonnani - 'Description of the principles, methods and techniques adopted by the Esfahan functional literacy pilot scheme in planning and developing its curricula'.

J. Smyth - 'Costs-effectiveness report on the work-oriented adult literacy pilot project in Iran : synopsis'.

Bazany is the Evaluation Specialist assigned to the Esfahan Project. Bonnani had previously served the Project as Literacy Materials Specialist. Smyth's paper is based upon a consulting mission to Iran undertaken for the Department of Educational Planning and Finance. No attempt is made to summarize the findings reported in these papers. The purpose of the commentary is that of reviewing the concept upon which the Project was based, certain of the analytical techniques employed and some of the more interesting evaluational findings obtained.

1/ What is referred to here as the Esfahan Project is, in fact, a sub-project within the Iranian programme. A related project is being carried on in the Dezful area in south western Iran.

2/ The results reported by Bazany and commented upon in this paper are typically based upon sample findings from selected programmes. Such results are thought to be typical of Project activities as a whole. There is, however, no statistical assurance on this point.

2. The roles of evaluation

A distinction is frequently made between the 'formative' 1/ and 'summative' 1/ roles of evaluation. The former involves the use of evaluative findings for programme improvements. The latter seeks to make more ultimate judgements about the effectiveness of programmes in attaining their intended objectives. 'Summative' evaluation thus presumes the existence of accepted evaluative criteria. By contrast, 'formative' evaluation need make no explicit assumptions regarding standards to be achieved. While 'formative' evaluation does not preclude - and may often assist - 'summative' evaluation, the distinction in purpose is fundamental regarding the conclusions that may be reached from evaluations' results.

3. Functional literacy : The concept and its implications for 'summative' evaluation

The evaluation of the Esfahan Work-Oriented Adult Literacy Pilot Project is predominantly 'formative' in purpose. This is, in a sense, ironic as the Project and the Experimental World Literacy Programme, of which it is a component, are defined and justified in terms of the development objectives pursued rather than the educational means employed. Both Project and World Programme are based upon the concept of 'functional literacy training' 2/. This newer form of training is differentiated from the more traditional kind by its emphasis upon relating literacy methods and content to economic and social development. More specifically, the designers of the Esfahan project perceived a shortage of literate and skilled workers to constitute a constraint upon economic development. Functional literacy training was conceived as a means of loosening this constraint by upgrading manpower qualifications and thereby contributing to development. The test of this hypothesis linking training to development would constitute an element of 'summative' evaluation.

It is evident that a number of prerequisites and conditions must be fulfilled before such a test becomes possible. Foremost among these is the development of an instructional technology.

1/ This distinction is made, for example, by M. Scriven, "Methodology of Evaluation" in AREA Monograph Series on Curriculum Evaluation, Vol. 1, Chicago, Rand McNally, 1967. 'Formative evaluation' takes place in the research development stage and is directed toward the improvement of the product under development. 'Summative evaluation' measures a product in relationship to pre-established objectives.

2/ For a discussion of the concept of 'functional literacy' employed in the Experimental World Literacy Programme, see J. Cairns, Convergence, Vol. III, No. 2, 1970.

To date, this is the task that has preoccupied the Project staff. Other requirements pertain to the research design. Theoretically, the exact linkage between the selected fields of training and the intended development consequences must be specified. Subsumed under this task is the necessity of defining indicators of the aspects of development it is intended to affect and the obtainment of pre-measures against which post-measures may be compared.

The measurement problem is further complicated by contemporaneous changes in factors of production other than the quality of labour. Regarding this last point, it should be noted that the project site, Esfahan, was particularly selected in order to observe the consequences of combining a manpower strategy with large-scale investments in agriculture and industry. The hoped for synergistic reaction, if realised, will both promote development and, incidentally, complicate the measurement process.

A hypothetical example based on a Project programme may suggest the method and intent of 'summative' evaluation. The sugar beet training course provides a relatively straightforward example. Its purpose is presumably that of contributing to agricultural productivity by increasing the output of sugar beet. Actual production, if known, would be a suitable indicator. An observed increase in sugar beet production following the implementation of the training course is a necessary but insufficient proof of programme effectiveness. Evidence that course participants adapt new practices advocated in the training course and experience a more rapid increase in production than non-participants is more compelling proof. Production outcomes are thereby related to course participation through the plausible intervening variable of adaptation of improved practices. A still more convincing mode of proof would be constituted by the finding that observed increases in production are better explained by course participation than by rival hypotheses: sale price, land-holdings etc.

It may be maintained that such 'purist' standards of scientific rigour are not applicable to field operations. While possibly valid, this contention is aside from the point. The issue is not between simple and sophisticated research designs, but rather pertains to the role or purpose of evaluation. Is the intended outcome to be a judgement of programme success in attaining its objectives, or is it, as with the Esfahan Project, the more preliminary goal of developing an instructional technology? In short, is evaluation 'summative' or 'formative' in role?

4. The evolution of an instructional technology

The problem of giving operational meaning to the concept of functional literacy became from the outset the predominant concern of the Project staff. It was specified that training should be related to economic and social development goals and that it ought to be work-oriented. While of some help in suggesting appropriate criteria, this definition specified neither the content of the training nor the methods of instruction to be employed.

A starting point in specifying programme content was that of determining the occupational skills in which instruction would be offered. Development plans (where available and applicable), knowledge of labour force structure and prevailing trends, and resort to commonsense judgements all played a role in determining such choices. Initially, the programmes were highly specific in nature (e. g. the plant protection course). Subsequently, more general programmes were offered (e. g. the general agricultural course). The more micro-level decisions as to precisely what aspects of the selected topics should be emphasized and the order and manner in which materials could be most effectively presented posed a continuing challenge. The present form of the Project's instructional technology - i. e. the selection and organization of content and the choice of methods - is the result of an evolutionary process. Earlier versions of programmes were replaced by improved ones. The role of evaluation was that of identifying programme difficulties and measuring the impact of proposed revisions. It was, in a word, 'formative' evaluation.

The revision of the arithmetic units represents a highly successful example of the use of evaluational findings to improve course outcomes. In 1969, the order of presentation of material was the classic one employed in primary schools around the world: counting came first (one to ten in the first week, ten to one hundred in the second), next addition, then subtraction and finally multiplication and division. Evaluation showed this method produced very disappointing results. It was observed, however, that in spite of low test scores, participants seemed capable of handling complicated calculations in their practical affairs (e. g. marketing). These findings and insights led to a complete revision of the 1970 curriculum. In essence, it involved the integration of arithmetic instruction with technical instruction. Arithmetic operations were introduced at the point at which they were required for comprehension of the technical content. In many cases, the arithmetic being taught was a formalization and generalization of operations previously performed more or less intuitively. The improvement in test achievement was striking. In many programmes, the average test score was twice as high under the new method as under the old.

5. Indicators of programme success

The Project's two principal indicators of programme success are course participation and achievement. The measures of participation are multiple: enrolment, attendance, drop-out and punctuality. Examination score is the usual measure of achievement.

Enrolment

The measurement of enrolment has both quantitative and qualitative aspects. It is not only the total number of participants that is considered important, but also their occupations. Separate quotas were established for women and for industry, agriculture and craftsmen. Actual enrolment shows little relationship to these prescribed quotas. Participation by women is nearly twice their allotted percentage. Farmers fill only 64 per cent of their quota and industrial workers and craftsmen only 21 per cent and 12 per cent respectively of theirs.

The assignment of quotas relates to the functional literacy objective of providing training for occupations thought to play strategic roles in development. Situational factors probably explain part of the discrepancy between prescribed and actual enrolments. It is noted, for example, that industrial employers are generally not favourably disposed toward the participation of their employees in literacy programmes. While accounting for the relatively low number of industrial workers in these programmes, it raises more fundamental issues. Why should employers oppose a training course presumably capable of markedly increasing employee productivity? The willingness of women to participate in large numbers poses an analogous issue. Apparently, the intuitive cost-benefit analysis of these women persuades them to invest their time in literacy study. In both of the above instances, there is an evident disparity between private motivations and official enrolment priorities. Does this suggest that the latter are not soundly based? There is certainly neither utility nor morality in offering education to the unmotivated while denying it to those who seek it. As the disparity between the assigned quotas and actual participation reveals, the Project has, in fact, adopted an 'open door' policy, but seemingly finds difficulty in reconciling this sensible decision with official ideology.

Drop-out

Literacy courses are prone to relatively high drop-out. There is neither the 'stick' of compulsory attendance nor the 'carrot' of a diploma at the end of the course to assist in sustaining participation. Thus, the holding power of a course is a rough indicator of its utility as judged by participants. Drop-out from the Project's courses shows an expected pattern. It is high during early weeks and then declines. It tends also to be high at 'decision points' such as between course stages. The agricultural season and industrial work schedule have a predictable influence on both attendance and drop-out. The net result is that fewer than 50 per cent of the original participants finish a course.

It would seem useful to make a distinction between drop-out produced by external factors and that resulting directly from the conduct of the course. In the short term, it is probably difficult to correct external causes of drop-out. The opportunity to work overtime or the need to care for a newly born infant typically have a pre-emptive claim on the time of participants. Drop-out produced by dissatisfaction with course content or scheduling may be more easily remedied. Unfortunately, the external factors are the more important ones. Bazany reports that 44 per cent of a sample of drop-outs reported work obligations as responsible for drawing them from the course. Another 19 per cent were driven from the course by dissatisfaction with its content.

Achievement

As discussed above, the final objectives of the Project are economic and social in character. Nonetheless, achievement in literacy and numeracy constitute both means toward these more ultimate ends and goals in themselves. Smyth reports that in the original request of the government

of Iran to the United Nations Special Fund, functional literacy was defined as equivalent to the achievement of the average 6th or 7th grade student. This was apparently later judged overly ambitious, as Bazany states that the present objective is achievement equal to that of an average 4th grade student. In 1969, sample results showed that the Project failed to achieve its objective. After the revision of course content and method referred to above, both the reading and numeracy objectives were achieved in 1970. Writing remained below the prescribed standard.

The achievement of such standards in a relatively brief training period seems impressive. It is rather difficult, however, to know precisely what such findings imply. To begin with, many Project participants (probably 20 per cent in the programme in question) are classified as semi-literate at the start of their training. Even illiterate adults presumably understand many of the concepts that children must learn. They know, for example, what adding and subtracting imply even if they cannot accurately perform such operations. Moreover, the definition of achievement employed here measures but a fraction of the 'output' of schooling. It excludes certain of the subject-matters taught, says nothing of attitude formation and neglects the custodial function that schools serve in all societies. This is stated not with the intention of minimizing the achievement of the Esfahan Project, but as a warning against the assumption that the 'outputs' of primary schools and literacy projects are in any sense directly comparable.

Results on tests of technical achievement were less satisfactory than those for literacy and numeracy. Smyth attributes this to the characteristics of the teachers, few of whom are competent practitioners of the subject-matters in which they are offering instruction. Bazany notes that the actual allocation of class time to technical content falls below the suggested limits. In the general courses in particular, the teaching of literacy skills appears the primary goal. Technical training is a distant second in both attention received and results attained.

6. Determinates of programme success

For the reasons of both project management and research, it was necessary to identify those characteristics of participants, teachers and classes that bear a significant relationship to achievement.

Characteristics of participants

The findings on participants are interesting, even curious. Age bears a negative, but statistically insignificant relationship to achievement (i.e. younger participants, on average, are higher achievers than older participants). Measures of socio-economic status also appear unimportant. Literacy status upon entry into the course has a puzzling correlation with achievement. When the measure of literacy is based on a test, the relationship is negative: those who knew most in the beginning knew least in the end. Conversely, when the initial measure derives from the instructor's judgement, the relationship with final achievement score is positive.

The negative relationship between age and achievement is not surprising. While socio-economic status (SES) is usually strong and positively related to achievement in developed nations, it may be, or appear to be, less strongly so in developing societies. Indicators of SES are typically based on occupation and education. Neither measure is likely to yield a good statistical distribution in developing societies, particularly in rural areas. Public education has only recently become widely available. Most adult respondents will have had little if any schooling. Nor has occupational structure typically 'hardened' to the extent found in developed societies. The average rural citizen in a developing nation is a generalist who shifts occupation with the turn of the agricultural season. The traditional indicators of SES are thus unlikely to be sufficiently well distributed to yield significant correlational results. Efforts are under way to find a more relevant and applicable set of indicators of SES.

It is difficult to know what to make of the conflicting evidence regarding the relationship between initial literacy status and final achievement. Do the initially better qualified students become bored at the slow pace of instruction and attend intermittently (or drop out) while their less qualified classmates participate with regularity and diligence? Such hare and tortoise outcomes are possible, but certainly unusual. As Bazany observes, the teacher's rating of the participant probably includes motivation and intelligence and is thus not strictly a measure of literacy status. Being a more comprehensive evaluation, it proves a better predictor of final achievement.

Teacher characteristics and class size

The evaluation results show a consistent relationship between teacher characteristics and the achievement of their students. Experience and age are negatively correlated with achievement; the teacher's educational level is positively related to student achievement. The explanation offered is that younger, hence less experienced, teachers adjust more readily to the instructional methods employed by the Project.

Smyth reports that there is no significant relationship between class size and average class achievement. This might suggest that important economies could be achieved by increasing class size without detrimental effects upon achievement. The answer is probably no. First, there are physical constraints that must be taken into consideration. Rural programmes serve small and remote villages. It is thus difficult to either increase attendance from within the village or to combine the programme of one village with that of another. It should also be noted that increased class size could endanger future progress. Specifically, Bazany reports that while it was intended that group discussion be an important component of all instructional programmes, this objective has not been realized. Large class size could constitute an obstacle in correcting this shortcoming.

A methodological note concludes this section. It will be observed that the relationship between achievement and its correlates are derived from bivariate analysis. That is to say the relationship between two variables is examined in isolation. In field situations where computers are

not available, this is perhaps necessary. It is also potentially misleading as social research deals with complex and interrelated phenomena. A relationship such as that between achievement and class size is probably conditioned by a number of intervening variables, in particular, mode of instruction. Multivariate analysis improves upon bivariate analysis by permitting the simultaneous consideration of the influences of a number of variables upon a particular outcome. As such, it more nearly mirrors the complexity of reality and hence permits the more accurate estimation of relationships.

7. Treatment of development costs

The return on investments in educational developments depends both upon the novelty and worth of the 'product' developed and the ability of men to learn from experience. In principle, the treatment of development costs should reflect these same considerations. In fact, we do not possess and perhaps never shall obtain information on these issues. Accordingly, we must improvise a solution.

Smyth proposes that the first three years of project acitivity, costing some $2.4 million, be treated as a development expenditure. Of this amount, Iranian authorities supplied approximately $1.3 million; the remainder was provided by Unesco/UNDP. Amortizing the cost to Iran over a 25-year period with an 8 per cent interest charge yields an annual cost of $378 thousand.

This is perhaps as sensible a solution as any. One may quibble over whether the total cost should be included or only the Iranian portion and over the duration of the amortization period. Unless an extremely short time period is selected (e.g. five or ten years), the last problem is unlikely to alter the annual cost greatly. The principal difficulty is that an analysis of costs alone evades the issue of fundamental interest: what has been purchased?

There is evidence that a viable instructional technology has been developed. Is this technology applicable outside the Esfahan area? Will it reduce the cost of 'producing' literate adults in the future? If time answers these queries in the affirmative, all of Iran's illiterate adults are potential beneficiaries of the project's development investment. There seems as yet essentially no evidence that 'functional literacy' represents a development strategy as well as an instructional technology. If it does, presumably all Iranians, not just present and potential course participants, are the beneficiaries of the investment made in Esfahan.

8. Conclusion

This paper makes a distinction between 'formative' and 'summative' evaluation. The evaluation of the Esfahan Project has been of the former type. To date, the Project has been occupied with the development of an instructional technology. This represents an important achievement in its own right and an essential intermediate step toward the attainment of the Project's ultimate economic and social goals. 'Summative' evaluation - i.e. evaluation of these more ultimate objectives - can and should now be begun.

Document No. 16

PLANNING AND INTRODUCING THE EVALUATION OF THE EDUCATIONAL TELEVISION SERVICE IN THE IVORY COAST

by J.C. Pauvert

1. Objects of the programme

The Ivory Coast Government has included in its Five-Year Plan 1971-1975, the renovation and rapid extension of primary education. Having in fact decided that total enrolment for all children between 6 and 11 years should be reached by 1986, it has drawn up a scheme characterised by the systematic use of television; in 1980, 16,500 classrooms, the total now existing, will be equipped with receivers and will take 720,000 pupils. At that date daily programmes of seven hours will be put out for the benefit of the six years of the primary cycle. Other programmes will be addressed to young people and adults, making television an instrument of continuing education (with the support of other media such as sound broadcasting and the press).

The object of this scheme is to remedy the existing weaknesses in primary education, namely, the wide disparity in enrolment ratios between different regions (from 5 per cent to 95 per cent), insufficient qualification of teachers, substantial wastage between the first and sixth year of primary studies, and maladjustment of curricula and teaching methods.

This Educational Television Scheme is also designed to give the whole population an instrument of communication, a common language, spoken and read by all, a means of continuing out-of-school education, particularly indispensable for primary school leavers who do not continue their studies. It is therefore set in the general context of a cultural policy of national unification, aimed also at intensifying the participation of the whole population in national development, the main lines of which, as defined by the 1971-1975 Plan, are: the extension of agricultural modernization and the betterment of the countryside, the 'Ivorisation' of the economy, the orientation of the training mechanism so as to give everybody the means of adapting themselves to the needs of the economy and social progress, by sharing in the national enterprise of transforming the conditions and modes of life, thought and action.

The use of television is explained by the fact that the Ivory Coast has a high quality television infrastructure which, in 1973, will cover the whole of the national territory and which has so

far been very much underemployed. This appeared to be a means of ensuring both the sufficiently rapid progress of basic education and the accelerated organization of out-of-school education open both to young people and to adults. Furthermore, on the basis of existing experience of school television in Niger, Salvador and Samoa, it seemed possible to take into consideration the educational advantages of television; the presentation of concrete and no longer purely verbal elements, the diffusion of good audio-visual models, openness to the world, and the constant updating of the terms, content and methods of teaching; the unification of teaching, the generalization of the work of specialized and highly qualified teachers for the benefit of the whole teaching body.

This Scheme was therefore thought likely to lead to an appreciable improvement in the internal efficiency of primary education (particularly by the reduction of repeating and drop-out) and a better adjustment of teaching to the needs of development.

2. Organization

The introduction of the Educational Television Scheme was preceded from 1967 to 1969 by a number of economic, sociological, educational and technical studies. It was started in 1969 by the installation of a 'television complex' at Bouaké, the second city in the Ivory Coast, in the centre of the country, 400 km. from Abidjan.

This complex, which has no equivalent in other countries and which is still housed in temporary accommodation, consists of:

- a department for the training and refresher training of teachers, consisting of a Teacher Training College which trains full-time teachers in three years with a view to becoming headmasters, teaching advisers or to holding executive or specialist posts in the Educational Television Scheme, and a pilot CAFOP (there are seven CAFOP in the whole of the Ivory Coast for the training of ordinary primary school teachers, who are trained in one year). This training department is also responsible for all refresher training of serving staff (teachers, headmasters, educational advisers, primary school inspectors, etc.).
- a publications centre, producing printed material in support of television programmes.
- common services, especially a research and internal evaluation centre, associated with an operations service which ensures the rapid feedback from the television receiving schools to the two production centres; a general and audio-visual library (documentation for all media) and a technical maintenance service.

The personnel of this complex (educationists, producers, studio staff and administrative staff) consists of experts supplied by external aid from a number of sources (Unesco, France, Canada) and of Ivory Coast nationals.

The complex, under the authority of a Director who is also an Ivory Coast national, comes under the State Secretariat for primary education and television education, associated with the Ministry of Education and responsible for all operations. The State Secretariat is also responsible for a service for the installation and maintenance of receivers in the schools and a publications distribution service.

The Secretary of State for Educational Television has the benefit, in carrying out the whole of the Scheme, of the technical advice of a Scientific Consultative Commitee consisting of senior specialists who can speak with authority in the fields of education, communications and educational technology, selected by the Government from a number of countries (Belgium, Canada, United States of America, France, United Kingdom, and the Federal Republic of Germany).

Finally, the representatives of governments and multilateral institutions co-operate with the Ivory Coast in this large-scale undertaking, meeting in a group for the co-ordination of external aid, known as the Abidjan Club.

An essential characteristic of this project is that it is supported by extremely varied sources; the World Bank, the United Nations Development Programme, Unesco, Unicef, the European Development Fund, France, Canada, United States of America and the Federal Republic of Germany, shortly to be joined by Belgium and Italy, in fact take part in this exemplary undertaking of international concerted action and associate themselves with the considerable effort being made by the Ivory Coast Government. From 1969 to 1973 the investments made in this operation amounted to more than 2 billion Francs CFA; external aid in operations (specialized personnel) amounted to 366 million Francs CFA for 1971.

3. Present position and prospective development

The Bouaké complex was opened in October 1969; the Teacher Training College received a first intake of 70 pupil-teachers and the pilot CAFOP recruited 120 assistant pupil-teachers. During the same year, 1969-1970, the first production studios began to operate. In October 1971, in accordance with the planned timetable, 446 CP1 classes (first year of the primary education cycle) equipped with television receivers, began to receive the programmes (four 10 to 20-minute programmes a day) and to apply new curricula.

Each year, 500 new classrooms will be equipped and a new level of the primary education cycle will be affected by the reform and the introduction of television, going up to CM2 (sixth year of primary studies) in 1976-1977 by which date the number of television classes will have risen to 10,000, with a total of nearly 450,000 pupils.

It is planned that in 1979, the 6-7 age-group, which will then include about 170,000 children, will be admitted in full to the first year of remodelled television education, and that within six years thereafter general enrolment will be achieved.

In parallel, the organization of out-of-school education activities should begin in 1972 and should keep pace with the development of televised primary education.

4. Evaluation of the Scheme

The need for evaluation

In the phase of preparatory studies the principle of evaluation of the Scheme was laid down.

In the first place, the Ivory Coast Government wanted to be in a position to assess the effectiveness of the reforms introduced into its primary education. The 1971-1975 Plan should, in effect, allow primary education to develop, without this effort prejudicing those who should benefit in priority from secondary and higher education and training. This means that the aims laid down for the Educational Television Scheme must be attained within the limits of the financial resources provided and that the basic assumption of this programme (substantial improvement in the internal efficiency of the system thanks to the use of television and better teacher qualifications) must prove to be well-founded.

In addition, part of this evaluation must be devoted to the permanent review of the system through the organization of regular feedback.

Furthermore, the various bilateral and multilateral external aid agencies engaged alongside the Ivory Coast Government in carrying out the Scheme expressed the desire to measure the effects of their co-operation and to see the justification of their hope of finding, in this massive resource to the technology of education, the solution to the problems raised by the generalization of basic education in the developing countries at an acceptable cost.

Ever since its first meetings, therefore, the Consultative Group for the Co-ordination of the Scheme (the Abidjan Club) decided that continuous evaluation would be carried out and that, in order to guarantee its objectivity, it would be financed by support from governments and institutions not directly taking part in the Scheme.

The objectives of evaluation

This evaluation should, in this way, establish whether the Scheme has attained its objectives namely:

- To give a better distribution to the education effort, so as to make the primary school a factor in national unification, both cultural and economic,
- to link this effort to development projects, so that primary school leavers can integrate themselves in a dynamic environment, for good reasons and with advantage to themselves, instead of leaving for the towns,
- to improve the educational, and therefore the financial, return on education, so that as many pupils as possible who are admitted to CP1 complete the cycle within a normal time after acquiring the basic knowledge deemed indispensable to the social and human betterment of all Ivory Coast citizens,

- to unify the remodelling of primary education by allowing the simultaneous generalization of reforms of content and method, which could not be done even by a very substantial effort of refresher training conducted with traditional means. Thanks to television, the results of educational research will be applied very fast by the whole teaching body, a continuous teacher-training college being thus made a reality.

Measuring the results obtained in these different directions amounts to verifying the proper working of the remodelled primary education system in liaison with out-of-school education; a system open to the national environment (economic, social, cultural) and whose ultimate goal is the development of that environment.

From this point of view, it must therefore be an overall evaluation made in terms of systems analysis at Ivory Coast level, with a view to assessing the impact of this system on the country.

But an evaluation of this kind is also an instrument for the execution of the Scheme by enabling continuous adjustments to be made in the various sectors of:

- management and administration,
- educational content and methods,
- technology,
- economics and financing, and cost-benefit ratio.

It should also relate to the system as such, that is to say, as a combination of various means, methods and techniques and the choice of a strategy for the introduction of innovations deemed adequate to the objectives.

Organization of the evaluation

In the light of the foregoing, a great deal of trouble was taken to finalise the organization of the evaluation, and it is, in fact, not yet finished, though it is possible to set out the main lines here.

- A team responsible for overall (or synthetic or systematic) evaluation. This is also regarded as the outside evaluation assigned to specialists provided by the institutions and governments which are taking no direct part in executing the Scheme (United States of America, the Federal Republic of Germany, and, probably in the near future, Belgium).

This team at present consists of a permanent team-leader and consultants from the Institute for Communications Research (Stanford University), the Staats Institut für Bildungsforschung und Planning (Munich) and the experimental education laboratory of the University of Liège. It is at present completing the working plan for the whole of the evaluation. It operates at the level of the State Secretariat for primary education and educational television. It is assisted by the management and administrative office of the Educational Television Scheme, also attached to the State Secretariat, which compiles a number of administrative and financial data.

- A research and evaluation unit, located at the level of the Bouaké television complex, which is responsible for continuous educational evaluation, geared to the operational service; it is

responsible for ensuring permanent feedback between the new television classes and the centres for the production of television programmes and printed matter for teachers and pupils. The research and evaluation unit and this operating service are also in contact with the training and refresher training department of the complex.

The elements of evaluation

Data on the management of the system. These data relate to the structure and functioning of the system:

(i) Organization chart, information and administration circuits, legal structure, links between Ministries (co-operation among services concerned with the Scheme), co-ordination of external aid;

(ii) personnel administration; status; methods of recruitment, training and advanced training;

(iii) programming and administration of all operations (relations between the present system and the new system) and of the various sub-systems responsible for training and refresher training, television and radio production, publications, installation and maintenance of the transmission network and the receiving network, distribution of publications, research and operating service, buildings and equipment; management of stocks, equipment and premises;

(iv) information of the public about the programme and its evolution.

Technological data

They relate to the production, transmission and reception of television and radio programmes and to the production and distribution of printed material and thus affect the television and radio productions' centres, the publications centre, the equipment of the Ivory Coast Broadcasting Corporation, receiving equipment in the schools and all the equipment used for personnel training and refresher training, both in the Bouaké complex and in all the CAFOP.

(a) Equipment used, suitability for its purpose;

(b) effectiveness and reliability of use, full employment of means;

(c) premises of the Bouaké complex (temporary buildings, plans for permanent buildings); school premises (architecture and equipment of television schools).

Educational data

The evaluation data in this field include those relating to:

(a) The degree of cognitive and psycho-motor development (the latter mainly centred on manual and graphic motility, the evaluation of which is useful for children beginning to learn to write);

(b) written and oral knowledge of French (the only language of instruction);

(c) assimilation of mathematics;

(d) verbal interactions between teacher and pupil in the classroom;

(e) behaviour and attitudes of pupils in class;

(f) opinions and attitudes of teachers and parents;

(g) teachers' knowledge of the subjects taught (especially French and mathematics) on completion of initial training and refresher training.

The populations affected by the elaboration of instruments of evaluation are the pupils and teachers who are completing one of the years of the primary cycle for the first time. In other words, this evaluation is at present being undertaken for pupils and teachers who complete CP1, the first year of primary schooling in 1972.

The instruments worked out will then be applied to the teachers and pupils of the following year. This operation will lead to a better adjustment of the instruments to the real state of affairs.

For the purpose of comparison, this action will be carried out with masters and pupils of television and non-television classes simultaneously.

Stages in the construction of instruments

An instrument of objective evaluation must meet the following requirements:

(a) The subject matter of the evaluation must be clearly defined (phases of the construction of tests, observation grids, questionnaires);

(b) the instruments must be handled and the replies received must be corrected as uniformly as possible (standardization phase);

(c) the results must be interpreted on the basis of norms established by the prior examination of a fairly high number of subjects which allows each of the answers to be sited within a statistical distribution (phase of establishing norms);

(d) the data compiled must provide proof that the instrument really measures what it is supposed to measure (validity study);

(e) the test must produce the same results each time it is repeated (fidelity study).

To meet these requirements, the following procedure has been laid down:

- Phase 1: A preliminary sample establishes the cultural range and linguistic capacities of the populations to which the instrument is intended to apply. On the basis of this information, a first version of the instrument will be worked out in the Laboratory of the University of Liège.
- Phase 2: A first application in the field to restricted samples will provide information as to the manageability of the instruments and indications of the difficulties and discriminations of the items of the tests. Modifications may thus be made and new items drafted. The instrument will be completed by precise instructions.
- Phase 3: It will then be applied to a representative sample. The analysis of items, establishment of norms and fidelity calculations will be carried out at the University of Liège. This last phase will be repeated in the event of unsatisfactory results. The validity of the instruments constructed will also be studied.
- Phase 4: The instruments are now operational and can be generally applied.

Training of staff responsible for applying the instruments and using the information

Concurrently with the finalisation of the instruments, staff will be associated with the various stages of the undertaking. In this way, on the expiry of the three years set aside for the construction of the instruments, they will be able to use them (tests, compilation of data, coding, processing, analysis of results).

It is nevertheless necessary to provide for the specialization and training abroad of certain Ivory Coast nationals, who will be called upon to take over from the experts. The Experimental Educational Laboratory might assume responsibility for this specialization.

Financial and economic data

(a) They relate to the state of expenditure and audit relating to all operations of training and refresher training, television and radio production, publications, transmission and reception, feedback, research and evaluation, as well as to the functioning of the primary schools and school inspectorates and of the central services. They cover both capital and recurrent expenditure, including the various external aids, but identifying them clearly.

(b) They should make it possible to check or confirm the cost estimated made when the Scheme was formulated, and the regular updating of this Scheme.

(c) They should also point to possible savings and provide the Scheme Management with elements of decision on this subject as well as estimates of the national budget and external aid.

(d) Finally, these data should make it possible to establish unit costs per teacher and per pupil and their various components [cf. point (a)] in the light also of changes observed in drop-out and repeating.

(e) In addition, economic and socio-economic data relating to the impact of the system on the national environment should be compiled (the relation between the penetration of educational television and local development, ways in which this teaching is integrated in the active life of pupils, etc.).

(f) The foregoing data should be used for an approach to cost-benefit analysis.

5. Overall evaluation of the system

On the basis of the various sectoral evaluations set out above, and of their synthesis, the overall evaluation team is responsible for determining:

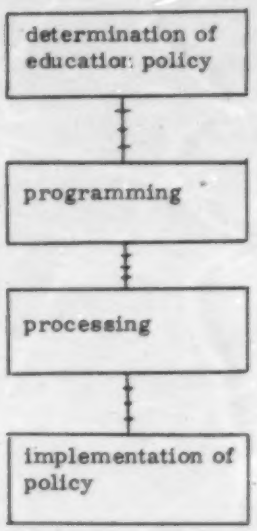
(a) For the national authorities, the elements of decision which will enable them to establish, pursue or modify the strategy for the conversion to the educational television system (both in-school and out-of-school); to adapt the management of this system to the need to obtain an optimum cost, as well as to the qualitative and quantitative results hoped from the reform of primary education and the organization of out-of-school education.

In systems analysis terms, overall evaluation should integrate the various data obtained at the following different levels, in the light of their relevance to each of them, and in such a way that all the operations carried out are self-consistent and consistent with the general education policy defined by the government and that continuous feedback is ensured between the implementation of the policy and the higher levels of programming and policy.

General policy
objectives recognized
restraints imposed

Needs and resources
of subsystems and
of the system

Flow of material
Flow of information
Flow of decisions



(b) For external aid agencies, which are interested in the first aspects of evaluation, the elements of decision which will enable them to extend the Ivory Coast experience to other countries who want to apply these solutions, either retaining the same strategy, the same plan of action and the same type of personnel and equipment, or modifying them so as to remedy any defects or shortcomings observed.

6. Evaluation of the evaluation

The overall evaluation group should apply a system of self-evaluation which would enable it constantly to adjust its methods, as well as to study the use made of the results of its investigations. It will be helped in this, as it has been in drawing up its working plan, by the International Scientific Consultative Committee for the Educational Television Scheme and the consultative group on the co-ordination of the Scheme.

Document No. 11

STATISTICAL RESEARCH ON INTERNAL EFFICIENCY OF SCHOOL SYSTEMS

by G. Carceles

Introduction

There is no longer any doubt as regards the need for systematic evaluation of school system functions. This obviously implies the quantification question, even in those cases where the points to be evaluated appear to be mainly qualitative.

The evaluation exercise aims at providing some kind of objective evidence of accomplishment in terms of outputs and to set this against the cost of the inputs. This process implies a quantification of goals and targets against which progress may be measured and effectiveness evaluated 1/.

The present paper will review very briefly the essentials of work undertaken by the Office of Statistics of Unesco - in close co-operation with interested Departments and in consultation with the IIEP - to evaluate the patterns of internal efficiency of educational systems so as to identify their major bottlenecks with an action-oriented approach, by suggesting simulation exercises enabling the policy-makers to estimate the 'price' and results of given measures.

Three main phases can be identified in this task: (1) The preparation of the statistical aspects of the 32nd session of the International Conference on Education (Unesco/IBE, Geneva, July 1970); (2) Planning the implementation of the statistical aspects of the Recommendations adopted by the ICE. (3) The follow-up.

A. The 32nd session of the I.C.E.

The International Conference on Education at the end of its 32nd Session (July 1970) adopted its Recommendation No. 66, entitled "Improved effectiveness of education systems, particularly through reduction of wastage at all levels of instruction" in accordance with the terms of reference of the Conference.

1/ United Nations Institute for Training and Research "U.N. development aid, criteria and methods of evaluation" New York, 1971.

The Technical Commission discussed this topic and had before it a working document "The Reduction of Wastage in Education" (document ED/BIE/CONFINTED 32/4) and a reference paper "The Statistical Measurement of Educational Wastage" (document ED/BIE/CONFINTED 32/Ref. 1). The reference paper was the result of a survey undertaken by the Office of Statistics in 1969, with a view to evaluating the combined and separate effects of repetition and drop-out, as factors of educational wastage, and their incidence in the internal efficiency in educational systems. It should be emphasised that this was the first attempt towards the study of this very serious problem at the international level. It is worth noting also that the statistical paper took into consideration the points raised during a meeting of experts on educational wastage, convened by Unesco and the International Bureau of Education in Geneva from 10 to 14 November 1969 and at which a working paper stated the conceptual framework, assumptions and limitations for the evaluation of educational wastage.

The 1969 Survey included all Unesco Member States and their territories. 148 replies were received but only 58 of them provided data on a complete enough basis to allow their analysis.

The study's main aim was the applied presentation, in national terms, of a series of methods and techniques leading to the statistical measurement and localization of drop-out and repetition, thus demonstrating the paramount importance for the planning of an efficient organization of national educational statistics. The main feature of this work is the derivation of a set of indicators of internal efficiency - related to each country's educational system - and treating separately each level of education as well as the two cycles of the second level.

Two major results appear in this study: (a) There are two quite distinct features of wastage - namely repetition and drop-out - and they sometimes work in very different directions. Separate profiles for both repetition and drop-out are thus essential for meaningful system analysis as well as for the evaluation of the cost of wastage, here studied in non-monetary terms; (b) The grouping of countries according to wastage patterns is often questionable, as the indicators derived have a concrete meaning when considered within the context of their own educational structure and should be very helpful if used to compare different regions or zones within a country, but would require attention if they had to be used for inter-country comparisons.

Among the main items of the ICE: Recommendation appear the statistical studies to be carried out in this field with reference to the methods used in the 1969 Unesco Survey. More specifically, it is stated:

"Further studies should be undertaken; using the case-study methods at national level and and with international assistance. If possible, Unesco should take the lead in promoting these studies, in which regional educational offices and centres could take an active part. The studies should deal with the following points, the work done by the various regional organizations being taken into account:

(a) How to achieve greater accuracy in the collection of data;

(b) How to check the reliability of wastage indices and of the deductions to be made from them;

(c) The elaboration of techniques for the assessment of wastage in school systems without repetitions or drop-outs;

(d) Elaboration of indicators of wastage for the purpose of simulation on the basis of alternative hypotheses;

(e) The nature and incidence of wastage in higher education."

It is evident that this step forward aiming at the analysis of the educational system with a flow-oriented approach rather than the purely stock situations, raised a set of reservations. Some of those reservations are conceptual; others question the validity of the probabilistic model and some of its assumptions. Nobody questions, however, the value of identifying as explicitly as possible the characteristics of educational wastage, i. e. the patterns of repetition and drop-out in an educational system and their influence on the actual costs.

In fact, the search for a more efficient utilisation of means implies greater intake possibilities without extra outlays. This simplified statement is based upon the current fact of high holding power (theoretically positive) meaning disguised failure (i. e. repetition).

Whether repetition is an ill or not, whether drop-out is or is not an indicator of malfunctioning of the system at a given stage are value judgements out of the purview of statisticians. It is up to the educators and planners to qualify under specific conditions the meaning of these phenomena, in some cases at the unit level rather than on an aggregate basis.

In other words, it should be repeated that any statistical analysis of educational efficiency must be geared to a set of tests allowing a better insight into the problem of a comparative evaluation of the output from the educational system, at its various stages, considering both its optimum capacity and any existing plans or programmes on this subject.

Thus for instance, drop-out in a given grade may be a very logical result in cases where the relevant schools do not go beyond that grade. On the other hand, drop-out or repetition could indicate the existence of one or more critical points determining a deficient working of the educational system. Whether the factors are internal or external will be found only when its magnitude and location are established. Again, we have to repeat that the conclusion depends upon the yardstrick used, i. e. existing objectives and limitations.

It seems pertinent to state that studies on efficiency should cover not only the formal network of the educational system but also the increasingly important out-of-school facilities, to correctly assess the meaning of educational attainment of any population, in a development context.

The above point is based upon a broader coverage of the data collection system if and when the countries themselves are able to provide such data. In this connection, the accuracy and reliability of the data (Point (a) of the statistical aspects of the ICE recommendation quoted above) are essential for any correct analysis of the problem and are the major concern in the Statistical Office's plan of work.

There is, moreover, an increasing awareness of the need for evaluation of school efficiency at the unit level with a view to clarifying the bases for internal imbalance which may not be evident when averages are computed. Here, as in the case of the studies launched to assess differential patterns by regions or zones within a country, the main problem is the receipt of the consistent and reliable statistical data.

B. The implementation of the ICE recommendation

Three of the four remaining points in the statistical aspects of the Recommendation appear to permit some immediate work, namely:

(b) Checking the reliability of wastage indices and of the deductions to be made from them;

(c) Elaborating techniques for the assessment of wastage in school systems without repetition or drop-outs;

(d) Elaborating indicators of wastage for the purpose of simulation on the basis of alternative hypothesis.

As for the last point, (e) (the nature and incidence of wastage in higher education), it might be thought that only sampling studies in the field would be adequate.

In order to consider the next steps to be taken for the implementation of the statistical aspects of Recommendation n° 66 adopted by the ICE (32nd session, July 1970) an expert meeting on the Evaluation of Internal Efficiency of Educational Systems, was organized by the Division of Statistics on Education, at Unesco Headquarters from 17 to 21 January 1972 1/.

Besides the continuous staff work on the above points, three major tasks were undertaken by consultants with a view to the development and verification of some of the methods and assumptions presented at the I.C.E. in the reference paper mentioned. This is particularly applicable in the case of Mr. Berstecher's 2/ and Professor Hellwig's 3/ papers on simulation and prediction of wastage, respectively. Professor Brimer's 4/ paper deals with the improved identification of wastage events.

1/ Unesco, Summary of conclusions, expert meeting on the evaluation of internal efficiency of educational systems, Paris, March 1972.

2/ Berstecher, D., "Costing educational wastage", December 1971 (Expert meeting on the evaluation of internal efficiency of educational systems, Paris, 17-21 January 1972).

3/ Hellwig, Z., "Wastage prediction method", December 1971 (Expert meeting on the evaluation of internal efficiency of educational systems, Paris, 17-21 January 1972).

4/ Brimer, A., "The quantification of school events related to educational wastage", December 1971.

The simulation exercises referred to in the reference document put before the ICE by the Unesco Office of Statistics are the main topic of Mr. Berstecher's paper ("Costing Educational Wastage - A Pilot Simulation Study") which after reviewing the basic concepts on costs of wastage and criticising the conventional approach, develops a simple simulation model and presents a set of strategies ('cost-neutral', 'medium-costly' and 'cost-intensive') on alternative bases.

Two major points are investigated in Professor Hellwig's paper ("Wastage Prediction Method"):

(a) How accurately is the real flow of pupils re-constructed by the Standard Model of Educational Wastage?

Clearly, if the probabilistic flow constructed by using the observed promotion, repetition and drop-out rates were close to reality, the margin of error observed in simulating the actual facts (let us say, past enrolment at the various grades) should be negligible. The three methods presented by Professor Hellwig lead into such an accuracy of prediction that they confirm the basic likelihood of work undertaken in this field. The application to the case of Colombia (the availability of data was the criterion for choice of this country) showed very low margins of error.

(b) To what extent does failure or success in a given grade in a given year depend upon previous performance?

On this very important point - actually until now at the heart of the weakest assumption in evaluating wastage: the homogeneous behavioural pattern of all pupils enrolled in any grade which assumes that all pupils in a grade, whether repeaters or not, have an equal potential for repeating that grade. Professor Hellwig recommends an independence test to determine differential patterns of promotion and repetition according to previous performance. In other words, the test aims at measuring the successive behaviour of repeaters and non-repeaters, by grade.

Data allowing the application of the test were made available in the last few weeks for Chad. The data covered the total of pupils enrolled in the last grade of first level for three consecutive year (1967-68, 1968-69 and 1969-70) and distributed by age and sex and with detail of date of entrance to each grade (i.e. their school career). (It is to be noted that since that population covered only pupils reaching the last grade, the conclusions to be drawn might not necessarily be valid for the overall enrolment, including pupils dropping-out).

The preliminary work undertaken by the Secretariat leads to the following conclusions for Chad during the period under consideration:

(i) Promotion and repetition are independent events in which the latter does not affect the former.

(ii) This feature is valid for all grades, whatever the age or the sex of the pupils.

Moreover, a functional relationship was found between the age of entrance of pupils and their successive repetition rates, indicating higher rates in the case of pupils joining school at the early ages and decreasing consistently as age increased.

In a different way, another step forward in the determination of the validity of the assumption on homogeneous behaviour was possible with data from Colombia. It is necessary to stress that the chance of having the required information from this country is most fortunate since it will allow the comparison of behaviour by age/grade against flow analysis as included in Professor Hellwig's paper. Thus the data available (Enrolment by age and sex for 1966 and 1967 with indication of newcomers) for first grade, allowed the derivation of an overall repetition rate and the breakdown according to the ages. It should be recalled again that these data are of a different type from the school career data of pupils in Chad.

In the case of Colombia, for the years studied, the main conclusions are:

(i) Repetition differs according to ages. Pupils entering at 7, 8, 12 and 13 years register rates below the average, while at 9, 10 and 11 the rates are much higher. The peak is reached by pupils entering at 11 years.

(ii) There is no difference in the pattern by sex.

(iii) More than 50 per cent of the repeaters enter school at 7 or 8 years.

The above conclusions are highly significant and seem to confirm the hypothesis of homogeneous behaviour by compensation, as in a case like Colombia where the aggregate rates lead to a prediction of survival by grades with a rather negligible margin of error.

The concepts debated by Professor Brimer in his paper ("The Quantification of School Events Related to Educational Wastage") are based upon the optimum disaggregation of data for relevant decision-making. The paper presents a model where wastage factors are classified on specific bases so as to assess efficiency at its various points and directed towards achievement evaluation.

It is to be noted that most of the parameters in the model could be estimated only if:

(a) Some type of cohort coding method is introduced and,

(b) two data collection points are fixed yearly.

The model could contribute to the more refined evaluation of wastage and the relative importance of its factors and would be particularly useful in the case of school systems without repetitions (i. e. with automatic promotion).

In addition, the paper dealt with the critical question of how one can distinguish between the profitable and unprofitable investment of time per pupil. Another important feature is the consideration that the production of estimates of wastage and inefficiency must relate to the educational action which ought to follow through the medium of policy decision. "To know that wastage is high at a particular level is not enough, unless it also locates the specific sector of the system where it occurs in such a way that action can be taken".

Two major areas are covered in the conclusions from the Expert meeting 1/ as follows:

1. The improvement of indicators and analyses to be derived from the type of data currently available.
2. The need to obtain a more detailed and comprehensive efficiency measure.

As regards item 1, the following conclusions were established:

(a) The basic plausibility of the assumptions being adopted for the construction of cohorts on the basis of observed rates was admitted.

(b) The considerably better insight into the internal functioning of educational systems provided through flow analysis as opposed to "apparent methods" was recognized and the misleading conclusions led to by the latter emphasized.

(c) The need for supplementary indices was expressed as well as for the devising of typologies of wastage profiles. The need for investigation of the causal aspects, particularly social backgrounds of unsuccessful pupils, teachers' qualifications and available facilities, was emphasized. In this connection, the convenience of studies aiming at comparing different zones, districts or regions inside a country was stressed, taking into account the existing constraints and limitations. These studies should lead to a typology of countries according to their efficiency features.

(d) The interest provided by the simulation work on costing wastage was underlined and the desirability of application to more refined situations recommended. The cost of measures to improve efficiency was deemed deserving of careful investigation.

(e) The participants expressed their appreciation of methods of predicting wastage both as verification of the correct reconstruction of school cohorts and as forecasting tools. Several improvements were, however, suggested, especially the consideration of the rate of increase of the number of newcomers entering the system in relevant cases.

In connection with item 2, the improvement of detail and coverage for a correct evaluation of efficiency, the main points discussed were:

(a) The need for a closer identification of wastage events was underlined. In this connection, the evaluation of effectiveness of the educational system at the different stages and levels was judged to be of paramount importance. The establishment of enrolment flows through the various cycles, including drop-outs within the school year, appeared highly desirable.

(b) The consideration of certain parameters, so far not available (such as mortality, transfers within the system, temporary interruption and later resumption, etc.) were recommended.

1/ Unesco, Summary of Conclusions, Expert meeting on the evaluation of internal efficiency of educational systems, Paris, March 1972.

(c) The identification of transition patterns between the various cycles and the efficiency features in higher education were judged to call for special sampling studies in selected countries.

(d) The analysis of school careers.

C. Follow-up

Three major steps are the main recommendations from the expert meeting:

(a) Methodological studies should be undertaken with a view to reaching an acceptable precision of diagnosis in those countries where the minimum required data are not available at present. Thus margins of error between actual flows, reconstructed cohorts and apparent methods should be estimated by using enrolment by grade only and also by using age data when available.

(b) Case studies should be undertaken specially oriented towards the testing of some simple cohort coding system.

(c) The above studies should permit the checking of indices derived by cruder methods and the estimation of their level of accuracy. Factors such as availability of places and successful completion should be taken into account in these exercises.

Concluding remarks

The importance of assessing the internal efficiency of an educational system cannot be overemphasized. Beyond the interest in analysing the present and past working of the system and thus evaluating performance and inefficient critical points, such an analysis is crucial if one wants to have a look into the future - for instance to predict the implications of given change in educational policy in terms of potential intake and output at various stages.

This is precisely the type of problem being faced at present by Unesco Office of Statistics within its Education Projections Programme. A major problem is the determination of specific coefficients of educational survival and transition to reconstruct the trends within the system. The data required (enrolment by grade, sex and age and repeaters by grade and sex) is made available by a relatively large number of countries but there is evidence that statistical data essential for a proper appraisal of the efficiency pattern could be obtained in other countries and also for supplementary aspects of this problem, provided that resources are allocated and personnel are trained for this purpose.

LIST OF PARTICIPANTS

INTERNATIONAL AND MULTILATERAL AGENCIES AND ORGANIZATIONS FOR DEVELOPMENT AID

I. UNITED NATIONS DEVELOPMENT PROGRAMME

Mr. Stéphane Hessel	Bureau for Programme Analysis and Policy Planning

II. UNESCO HEADQUARTERS

Mr. J. Platt	Director, Department of Planning and Financing of Education
Mr. W. Moller	Department of Planning and Financing of Education
Mr. N. Bodart	Department of Planning and Financing of Education
Mr. P. Coste	Department of School and Higher Education
Mr. E. Prabhaker	Department of School and Higher Education
Mr. J.C. Pauvert	Department of School and Higher Education
Mr. G. Carcelès	Office of Statistics

III. INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT (IBRD)

Mr. M. Hultin	Education Adviser

IV. EUROPEAN ECONOMIC COMMUNITY (EEC)

Mr. de Briey	Chief, Training Division
Mr. van der Vaeren	Chief, Special Aid Co-ordinating Service
Mr. P. Bolomey	Special Aid Co-ordinating Service

NATIONAL AGENCIES AND ORGANIZATIONS FOR DEVELOPMENT AID

V. CANADA: CANADIAN INTERNATIONAL DEVELOPMENT AGENCY (CIDA)

Mr. A.R. McKinnon	Special Adviser

VI. DENMARK: DANISH INTERNATIONAL DEVELOPMENT AGENCY (DANIDA)

Mr. Hillerup Jensen	Technical Assistance Adviser (Education)

VII. U.S.A.: UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID)

Mr. R.W. Schmeding	Chief, Education Division

VIII. U.S.A.: NATIONAL CENTER FOR EDUCATIONAL STATISTICS

Mr. P. Hawkins	

IX. FRANCE: STATE SECRETARIAT FOR FOREIGN AFFAIRS

Mr. P. Abela	Chief, Department of Socio-economic Studies
Mr. J. Raison	Chief of Mission, Education and Training Service

X. NORWAY: NORWEGIAN AGENCY FOR INTERNATIONAL DEVELOPMENT (NORAD)

Mr. P.B. Figved	Director
Mr. A. Eik	Project Officer
Mrs. A.L. Berggren	Senior Planning Officer

XI. NETHERLANDS: NETHERLANDS UNIVERSITIES FOUNDATION FOR INTERNATIONAL CO-OPERATION (NUFFIC)

Mr. A. Kater	Head of the Department of University Contacts
Mr. L.F.B. Dubbeldam	Staff Member of The Centre for the Study on Education in Changing Societies (CESO)

XII. SWEDEN: SWEDISH INTERNATIONAL DEVELOPMENT AUTHORITY (SIDA)

Mr. C. Ström	Director, Education Division
Mr. G. Dahlgren	Chief of the Evaluation Division
Mrs. G. Dahlgren	
Mr. C.B. Lostelius	Evaluation Division

INDIVIDUAL PARTICIPANT

Mr. G. Anton	Professor of Political Sciences, University of Navarre (Spain)

EXPERTS INVITED BY THE IIEP

Mr. L. Wijemanne	Ministry of Education (Ceylon)
Mr. L. Menke	University of Chile (Chile)
Mr. A. Etemad	Institute for Research Planning in Science and Education, Teheran (Iran)
Mr. P. Burloiu	Academy of Economic Studies (Roumania)
Mr. B. Niemierko	Pedagogical Institute (Poland)
Mr. M. Kinunda	Ministry of Education (Tanzania)

IIEP STAFF MEMBERS

Mr. R. Poignant	Director of the IIEP
Mr. J. Proust	In charge of the Seminar
Mr. N. Kravetz	
Mrs. N. Davis	
Mr. J. Hallak	
Mr. C. Tibi	
Mr. Ta Ngoc Châu	
Mr. J. Ryan	
Mr. G. Carron	Rapporteur
Miss F. Caillods	Rapporteur
Miss B. Frank	Rapporteur